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"THE TIMES" OF THE TRANSPORT WORLD

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See Page 6

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LONDON, SEPTEMBER 19, 1959

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An Appropriate Setting

THE fifty-eighth annual conference of the Municipal Passenger Transport Association, which opens in Edinburgh on Monday, will take place in appropriate surroundings with the classic architecture of the capital of Scotland providing the background for a very full programme of meetings, visits and social occasions. The city has, moreover, for long witnessed the development of road passenger transport. It was the scene of early endeavours with motor traction, while the tramways were for a long period adherents of the cable system. Furthermore the parent company of what is now known as the Scottish Omnibuses Group began in Edinburgh more than 54 years ago and today provides not only a network of stage and express services but also a large number of day and extended tours. It has for some two years had its St. Andrews Bus Station available to handle the traffic. The municipal transport undertaking is also a substantial tours operator and uses a specially painted fleet of 20 coaches to carry getting on for 125,000 tours passengers annually. Since the M.P.T.A. conference was last held in Edinburgh the remaining tram routes have been abandoned and flexibility of operation thereby increased. The pressure of the famous international festival, which lasts three weeks, will have relaxed but, as we recall from the I.A.T.A. meeting when that took place at a similar time, the inhabitants will still be zealously pursuing their aim of making the visitor feel at home and reiterating, and it is hard to blame them, their pride in a fine city to which those who have been before will return with pleasure and those who know it not will go with keen anticipation.

More Railway Criticism

AS chairman of the Central Transport Consultative Committee during its first six years of existence Sir Egbert Cadbury writes to *The Times* "wholeheartedly" endorsing a leading article. He "believes" in railways to the extent that they can be made to pay and play an ever-increasing and important role, but he thinks that a large number of their senior officials should be either retired or dismissed and replaced by younger men brought up the hard way in competitive industry. "The roads," he says, "are obviously far too congested with heavy goods traffic that should be going by rail. No commercial firm locks up a vast amount of capital and burdens itself with the troubles and difficulties that arise from operating its own transport without reason, and the reason is, to a large extent, the completely unrealistic attitude still adopted by many senior staff employed by British Railways." This sweeping assertion is challenged by Mr. G. D. R. Davies, of Davies and Robson, who says that his experience in negotiating both road and rail charges on behalf of clients is that only a small minority of railway officials fail to appreciate the competition they have to meet: manufacturing firms should not be given a wrong impression of the present situation by criticism which, though justifiable a few years ago, is no longer true. Sir Ronald Garrett, present chairman of the Central Committee, agrees that the consultative committees ought to play a more active part in the constructive side of the problem of relations between railways and public; on the other hand, he says, they must avoid turning these committees into complaints bureaux and thus interfere in what is properly the sphere of the railway administration.

An American View

SIR RONALD finds that the committees at present have some difficulty in acquainting themselves with the public point of view, but B.T.C. co-operation in this respect is anticipated following "a most encouraging discussion of this whole matter" with Sir Brian Robertson. So far most of the committees' time has been occupied in inquiring into proposals for the closing of stations and branch lines, a regrettable process in Sir Egbert Cadbury's view. "With every station and branch line that is closed," he asserts, "the idea that the railways are a dying and obsolete form of transport gathers

momentum in the public mind," a contention that is supported by Mr. John Betjeman, the poet. States the latter: "While the B.T.C. bemoans the current tendency of many people to take to private vehicles of their own volition, let it be remembered that each withdrawal of services drives would-be railway passengers away not only for regular journeys but for holiday ones as well" inasmuch as they are thereby encouraged to buy cars. But there is another side to the picture. Stirred by *The Times* narration of "grumbles which individually might be treated as trifling but which collectively are plainly sig-

weight of nuclear engine fuel in comparison with that of the thousands of gallons of fuel now required for propulsion, the atomic engine would make possible tremendously increased payloads and ranges. These, in turn, would mean far more efficient aircraft and consequently lower costs for the travelling public and the shipper. With aviation's development in the hands of men of good will, we held, for the first time, the one instrument which could eliminate permanently the barriers of time and distance and of ignorance and misunderstanding which had always separated men.

CURRENT TOPICS

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nificant," a visiting American, Mr. James V. Thetford, of Belleville, New Jersey, comes to the aid of our railways. "My wife and I," he writes, "are now enjoying our third trip here and, as before, travel about 1,000 miles or more on your railroads. We have journeyed from Penzance to Inverness; across the south to London, and made other trips across country, and we have not been delayed more than a few minutes beyond scheduled time. We travel second class and have always been comfortable. . . . At no time have we noticed a lack of civility on the part of personnel, and in fact many have gone out of their way to help." Indeed, Mr. Thetford prefers travelling on British Railways to any railroad system in the United States east of the Mississippi River!

Air Transport and World Peace

DELIVERING the sixteenth Branner Memorial Lecture to the Institute of Transport in London on Monday, Captain Eddie Rickenbacker, chairman of the board of Eastern Air Lines and one of the pioneers in the development of United States domestic air services, took as his theme world peace through air transport. Tremendous opportunities existed and, although it was estimated that the airlines would carry 100 million passengers this year, that figure required comparison with the community of 1,650 million living in the free world. No insoluble technical problems stood in the way of such potential progress as these figures suggested. Spectacular developments lay ahead for military aircraft, but the advance of aviation as the world's primary means of travel over any appreciable distance would be equally fantastic. Jet-powered machines would raise today's speeds of 600 m.p.h. to 2,500 or more and with that acceleration it would be possible to cross the American continent in little more than an hour, span the Atlantic in less than two, and circle the globe in scarcely 10 hours. Because of the limited

The Oxted Line

AFTER early vicissitudes in which the works lay neglected through a mid-nineteenth-century decade or so, what is now conveniently described by the Southern Region as the Oxted Line was completed by the London, Brighton and South Coast and South Eastern and Chatham Railways nearly 80 years ago. Despite a liberal train service (over 90 daily down to 1914) business was slow in developing, but the mid-twentieth-century expansion round the metropolis has changed all that. An electrification scheme was in embryo in 1939, but the railway has had to continue under steam traction with ever-increasing traffic. Between 1955 and 1957 alone the number of ordinary tickets issued at East Grinstead rose from 86,485 to 139,981; season tickets increased from 2,459 to 5,774. Corresponding figures at Hurst Green were 104,162 to 127,270 and 1,705 to 2,319 respectively. At Oxted itself, ordinary tickets rose from 129,105 to 168,792 and season tickets lifted a little from 8,436 to 10,941. At Edenbridge Town respective increases were 43,854 to 50,399 and 2,253 to 2,904 in 1957. It had been intended to make do with steam trains until the line could be electrified. In the past three years, however, housing developments have so increased the numbers of passengers that improvements are needed more quickly. It may also be added that the adoption of regular headway services in the slack hours both on the Oxted Line and on those from Three Bridges to East Grinstead and from Tunbridge Wells West to Brighton and to Eastbourne has undoubtedly assisted in the attraction of traffic. Accordingly 19 three-car diesel-electric trains are to be built at Eastleigh at an estimated cost of more than £1 million. Unfortunately work cannot be started until 1961 owing to other commitments. When they arrive the new trains will operate as six- or nine-car sets during the peaks. Electrification is still seen as the ultimate objective.

Transport and the General Election

"WE are utterly opposed to any extension of nationalisation, by whatever means," states the Conservative Party manifesto for the general election. "We shall do everything possible to ensure improved commercial standards of operation and less centralisation in those industries already nationalised. In addition we shall review the situation in civil aviation and set up a new licensing authority to bring a greater measure of freedom to nationally- and privately-owned airlines." (The re-nationalisation of long-distance road transport has for long figured in the programme of the Labour Party and is now reaffirmed.) Dealing with technical advance the Conservative manifesto states that by 1965 over 3,000 new diesels will be delivered into rail service, 8,000 miles of track relaid, and electric traction increased by 60 per cent. There will be "an intensive drive to build better and safer roads," and over the next five years the road programme is to be "twice as big as over the past five years." First priority in England and Wales will be completion of the five major motorway schemes; in Scotland are envisaged completion of the Forth Road Bridge and the two Clyde tunnels and reconstruction of the Carlisle—Glasgow—Stirling trunk road. A countrywide drive is promised to improve the existing road network as well as new schemes to relieve congestion in the towns; Severn and Tay bridges will both be started. A paragraph headed "The Use of Leisure" throws a sidelight on the sort of competition facing public transport in the modern age—two out of three families now own television and one in three has a car or cycle. On the other hand, there is some comfort in the fact that "twice as many are taking holidays away from home."

Bright Future for Natural Rubber

WITH the demand for basic rubbers increased by 70 per cent in the last decade, the Natural Rubber Development Board, in its annual report for 1958, forecast a bright future for natural rubber, provided that vigilance and energy continued to be applied to its development. In this connection the board referred to the speech by Mr. Tan Siew Sin, Malayan Minister for Commerce and Industry, on introducing the Malayan Rubber Fund Research and Development Bill last December. The Minister said: "Our vigorous replanting programme is one answer to the challenge [of synthetic rubber] and reorganisation and intensification of research is another and equally important answer. . . . to put it simply we must beat synthetics on price and quality." A provision of the Bill was the appointment of a controller to co-ordinate all aspects of the research and development financed by the Malayan Rubber Fund, an appointment subsequently accepted by Sir Geoffrey Fletcher Clay. Encouraging progress was reported with the development of rubberised roads. Australia afforded a particularly good example of the growing commercial acceptance of rubberised bitumen, while at home the material had also found favour on the strength of the performance of test sections laid earlier in areas of heavy traffic. In Hornsey, for example, rubberised bitumen was chosen for resurfacing all the main roads in the borough and, the report continued, rubber had been specified for various roads in Birmingham, including both wearing and base courses for the first section of the new Inner Ring Road now under construction. Attention was now being turned to developing rubberised tar, a cheaper material, with which the first full-scale road trials had now been concluded at Clifton Hampden. The use of rubber rail pads, inserted between rail and sleeper to reduce vibration and wear, continued to increase, South African Railways having laid some 400,000 natural rubber pads by the end of 1958, while several other railways were regular users or were conducting experiments. Copies of the report are available free from the board's office, Market Buildings, Mark Lane, E.C.3. The annual report for 1958 of associated Rubber Technical Developments, Limited, has also been published.



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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

We desire to call the attention of our readers to the fact that Russell Court, 3-16 Woburn Place, London, W.C.1, is our sole London address, and that no connection exists between this newspaper and any other publications bearing somewhat similar titles.

Aircraft and Fares

IF summer is merging gracefully with an autumn which seems to promise well, those connected with aviation seem to have taken time by the forelock and entered a winter of their discontent. The conclusion of the annual Farnborough show has been followed by the publication of six requirements which the council of the Society of British Aircraft Constructors feels would cover the basic problems facing the industry. It is, indeed, obvious that the reduction in orders for military aircraft of the conventional type is bound to have a marked effect in view of the high proportion of work which these represent to the industry as a whole. The cost of aircraft development and production, and especially the former, is such that few projects could be expected to become paying propositions on the basis of the home market alone. There have recently been suggestions that the fault lies with management and that the industry is extravagant. Emanating from a union with initials which make up the dubiously appropriate word ASSET (Association of Supervisory Staffs, Executives and Technicians), it is desirable to notice this attitude even if it seems to be largely unjustifiable. To a certain extent there is a germ of truth in the allegations in that some aircraft firms in their anxiety to get men with technical ability have forced the wages level above that which is economically appropriate for the job and have, at the same time, made things hard for other industries in the area which have not been so dependent upon generous Government contracts. Be that as it may, the industry now finds itself with a labour force larger than is likely to be needed in the future but reluctant to face squarely the facts of its redundancy.

Redundancy Inevitable

SHOULD the next British Government find itself able to accept some or all of the proposals which have been advanced by the S.B.A.C., it still seems probable that a substantial number of aircraft workers must find other employment. It is clear that the manufacturers do not expect adequate funds to be forthcoming from private investors to justify the vast expenditure on research and development which will be needed to maintain Britain as a competitive force in foreign markets—at present the industry's exports are running at the remarkable level of some

£150 million a year. On the other hand, looking at what has been achieved by manufacturers in other European countries, it is impossible not to wonder whether those in Britain might not have done more in some fields than they have to establish a basis of production which would support them in their endeavours to obtain backing both from private investors and from the government. The example of aircraft for business flying comes readily to mind and, while there may have been little evidence of official readiness to foster flying in this country other than by regular airlines, there are good grounds for thinking that willingness to take a chance would have been repaid.

Seeking Markets

WHATEVER is done in the sphere of the smaller aircraft, the larger commercial transport machines will tend to become still more vital export assets as the demand for conventional military types diminishes. It is not an easy field in which to succeed even though the Vickers Viscount has done so with such justifiable panache. Apart from the matter of credit terms, and the S.B.A.C. is certainly justified in feeling that past governments have been inelastic on that score, the air transport operator is always tempted to deal with a producer he knows and, when his tooling is for the maintenance of aircraft built elsewhere, he tends to look with some doubt upon any proposal which could involve initially heavy expenditure upon the maintenance equipment side. If that point is settled in favour of the British product he is still apt also to ask insistently about the provision of spare parts. Here it can be said that several of our manufacturers are really good, while the others are much improved. The strongest selling influence remains, of course, the operational and economic performance of the aircraft concerned and there a builder is much better placed if he can point to the satisfactory experience of British operators. It is doubtless with that in mind that the S.B.A.C. not only urges the full use of the Services and the State corporations for proving new machines but also wants the volume of the home market expanded.

Scope at Home

IT is doubtful whether any of those concerned would have the face to pretend that Britain has been very successful in the past in marrying military and commercial requirements. For years Transport Command, which is the obvious source of demand for aircraft most nearly comparable to those for civil use, placed few orders for re-equipment and most of those that did ultimately materialise were belated support for quite promising types that had not been taken up as widely as had been hoped. Expansion of the home market must assume readiness on the part of the Service departments to accept the role of active foster-parents and also to bring specifications rather closer to civil needs than has been the case heretofore. If the State corporations are to serve also as proving grounds they are entitled to expect recompense in one form or another—they have not done too badly by the industry up to now and often at considerable cost to themselves. It could be that other British operators might participate in this way with Government support and that would certainly be needed. It would seem that at the back of the mind of the S.B.A.C. council is also the expansion of the home market by fostering a demand for more aircraft and here there must arise the question of fares and the theory that a vast potential traffic will develop as soon as fares are reduced. This reasoning is widely supported and we summarise elsewhere in this issue the address delivered to the British Association by Sir William Hildred, director-general of I.A.T.A. It goes without saying that any move in this direction calls for operating equipment with the highest degree of economy and there surely the British manufacturers have a chance to produce the goods. It will involve also retailing their products at the most reasonable price they can and that is where the unions should be able to assist by co-operating in any steps to increase productivity. On the design side it is tempting to hope that Britain can score also by producing machines which will carry loads with a high degree of economy yet with a reasonable amount of space around their occupants.

NEWS SUMMARY

SHORTLY after midnight (local time) on September 13 it was announced in Moscow that a container from a multi-stage rocket launched about 2 p.m. on the afternoon of September 12 had landed on the moon less than 90 seconds after the predicted moment of impact. The container had covered the 236,875 miles in about 34 hr.

Trans World Airlines is to commence a transatlantic service with jet aircraft on November 23.—See page 13.

The death has occurred of Colonel Denis H. Bates, chairman of the Cunard Steam Ship Co., Limited, since 1953.

Attendance at the Farnborough air display and exhibition of the S.B.A.C. was nearly

250,000 on the three public days. On the Saturday the Short SC1 VTOL experimental aircraft made its first public flight.

The Southern Region of British Railways is to build 19 three-car diesel-electric train sets for use on the Oxford line pending its electrification.

H.R.H. the Duke of Edinburgh will be guest of honour at the annual banquet of the Society of Motor Manufacturers and Traders in London on October 20.

The Society of British Aircraft Constructors has put forward proposals to meet the problems facing the industry.—See page 13.

Silver City Airways will for the first time maintain its cross-Channel ferry service to Cherbourg throughout the winter. It will, however, use Hurn instead of Southampton as its British terminal airport.

ASSEMBLY IN AUSTRALIA

Leyland Plant in Full Operation

COMPREHENSIVE SERVICE FOR GROUP'S VEHICLES

PROGRESS at the Leyland Motors new headquarters and assembly plant in Melbourne has now reached a steady production level and full stocks of components and sub-assemblies in the service section of the factory provide 100 per cent service to operators of Leyland, Albion and Scammell vehicles in Australia. Situated in the suburb of West Footscray on the western side of Melbourne, the new plant is accessible from interstate highways running through the state capital. It has been sited in Melbourne with the object of improving the overall efficiency of Leyland Group operations in Australia as a whole and thus to strengthen the position of group operators in every state.

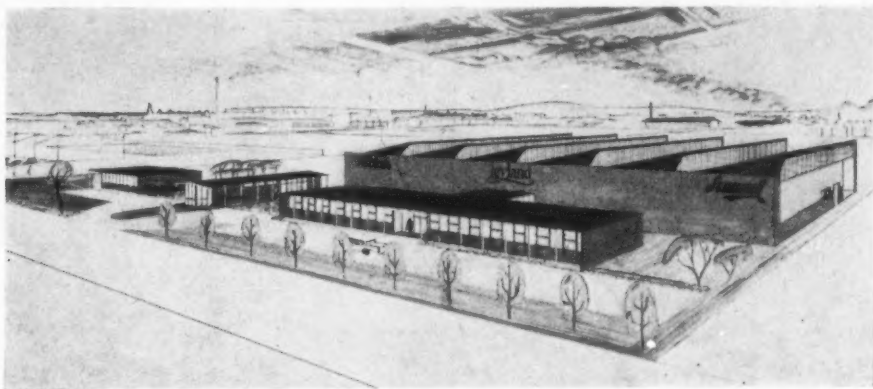
Australian Content

Increase in the Australian content of all vehicles is being vigorously pursued, progress in this direction being subject only to the consideration that whatever is done in the way of local manufacture must be economic and must stand equal comparison, from the point of view

Sydney, Brisbane and Adelaide, the new Melbourne plant has a separate vehicle repair shop where the complete overhaul of vehicles can be carried out. Engineers are also available 24 hours a day to carry out repairs or service work at any point in the Commonwealth. A unit exchange scheme, similar to the one conducted by the parent company in England whereby a remanufactured unit with full guarantee can be exchanged at reasonable price for a worn unit, has also been introduced. At present the scheme covers engines, fuel pumps and axle assemblies. The spare-parts stores, which occupies almost one-third of the existing shop area, offers a comprehensive round-the-clock service.

Accommodation

The main building is 240 ft. long and 150 ft. wide and contains the fuel-pump test room and the engine test house. A further outside covered area for chassis storage measures 240 ft. by 50 ft. In addition, there are two hard-standing areas, each 240 ft. by 50 ft., for c.k.d. pack storage. Customs bond store, and vehicle parking. Standing on a separate site of 10 acres is a contemporary-styled office 200 ft. long by 30 ft. wide, the canteen and the workers' amenities block. Showers, locker rooms and first-aid rooms are in the amenities



Drawing showing layout of the Leyland Motors new headquarters and assembly plant at West Footscray, Melbourne, Australia, where chassis for the whole continent, except Western Australia, are now assembled, with increasing local content.

of quality, with supplies from the United Kingdom factories of the group.

The new plant has its own design staff who are responsible for investigating and making recommendations for increasing the local contents of the vehicles. They liaise with the engineering divisions of the parent factories regarding modifications in designs introduced from time to time to cater for the particular operating conditions and requirements of the Australian market. Their work also consists of advising clients on such work as the installation of Leyland diesel engines in other makes of chassis and in the application of the company's various types of engines for industrial purposes.

Assembly at Perth

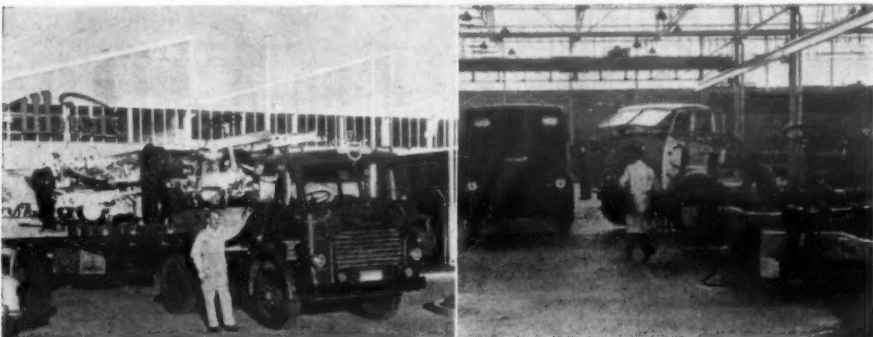
Virtually all assembly of chassis for the Australian States is undertaken at the new plant, the exception being chassis destined for Western Australia. Due to the vast distance between Melbourne and Western Australia, it would not be economical to have knocked-down chassis shipped from the U.K. factories to Melbourne, assembled,

block and all the buildings are surrounded by large concrete access areas.

At the moment an additional covered bay 240 ft. by 50 ft. is being built to provide extra floor space for the assembly of the new Leyland Vista-Vue driver's cab. Jigs and welding equipment have already been ordered for this de luxe cab, which meets the requirements of the Australian market. This new bay will also be used for chassis unit assemblies and for the storage of proprietary units which, owing to the demand for increased space, will shortly be removed from the service stores.

Apprentice Training

Good labour relations are maintained throughout the works and there is a social club committee on which employees are amply represented. Work by this committee has resulted in the provision of such amenities as free tea and refrigerated drinking fountains. An apprentice training scheme has also been established which has been described by the Apprenticeship Commission of Victoria as one of the best it has seen. Future field engineers and technical staff will come from this scheme.



A Comet articulator carries two Worldmaster chassis, supported by a specially developed wheel rig, on delivery from the Melbourne works; right, part of the assembly section of the works, which handles some 60 Leyland and Albion vehicles a month.

and then sent to the other side of the continent. These chassis are usually shipped direct to Perth, where they are assembled by West End Motors Pty., Limited, and Winterbottom Motor Co., Limited.

Delivery of vehicles assembled at the factory is by road and sea. For instance, Worldmaster under-floor-engined passenger chassis now being built for operation in Sydney travel the 600 miles on a large semi-trailer hauled by a Leyland Comet tractor. Generally similar to a car transporter, the 32-ft. long semi-trailer carries two Worldmaster chassis at a time, mounted one above the other and secured by special wheel rigs developed by the Footscray factory staff.

Sixty a Month

The assembly section at the plant handles some 60 vehicles a month, ranging from the 4-ton Albion Claymore to the 230-h.p. Leyland Buffalo, and caters for customers' special requirements as regards wheelbase, axle ratios, and additional fittings, such as extra fuel tanks. In all, some 300 varieties of goods and passenger chassis can be offered to Australian operators. After assembly, all the chassis are given the same inspection and testing as in the U.K., before they are delivered.

Machines in the well-equipped production shops range from brakedrum skimming machines to large capstan lathes and crankshaft grinders. The shop, among many normal jobs, produces such items as special flywheel housings required when Leyland engines are fitted into other makes of chassis.

In common with the group's main depots in

The establishment of the new headquarters and assembly plant in Melbourne is the most extensive of Leyland's comprehensive programme of expansion in Australasia since the company first established a depot there in 1919.

Work in Hand

Work in hand at the plant includes assembly of the balance of 156 Royal Tiger Worldmaster chassis ordered last year by the Department of Government Transport, New South Wales. These are the heavy-duty under-floor-engine single-deckers developed by Leyland Motors for arduous duty overseas, incorporating gear drives for all engine auxiliaries, effective dust-proofing of all running units and two-stage air-pressure braking. The units for New South Wales also incorporate the optional epicyclic gearbox with fully automatic gear-changing, used in conjunction with the Leyland automatic friction clutch, which has been found in service to give a 3 to 5 per cent improvement in fuel consumption compared with the more usual fluid coupling.

The Worldmasters already in service with the N.S.W. Transport Department have obviously been giving exemplary service, for a repeat order for a further 50 chassis of similar type has been announced this week, bringing the total value of contracts between the department and Leyland Motors for this type of bus alone to £1,300,000. Buses on the latest order, which will be equipped with Australian-built single-deck bodies to the special requirements of the operator, will be going into service in the metropolitan area of Sydney and in the city of Newcastle, where more than 700 Leyland and Albion buses are already in operation.

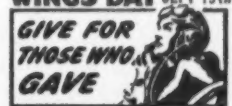
Faith in Fodens



The Australian Blue Metal Co. operate approximately 150 Foden vehicles of various types. This very large concern has numerous quarries throughout Australia and supply the stone used for road construction. The model shown in the photograph is a tractor unit powered by a Gardner 6 LX, 150 B.H.P. oil engine with 12 speed double underdrive gearbox, air brakes, all metal ventilated roof cab and is shown hauling a 24' x 0" aluminium tipper trailer for pay loads of 20 tons.



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L.T.E. Moves to Attract Busmen

TO help recruitment of bus drivers and conductors London Transport has decided to pay the maximum wage rates to new entrant busmen after one year's service only. At present London busmen do not get maximum pay rates until they have completed two years' service. An intermediate rate for staff with over six months' service is being increased also. Short service busmen already working for London Transport will receive the new rates and it will mean 2s. a week more for staff with over six months' service and 4s. more for staff with between 12 months' and two years' service. About 3,000 drivers and conductors are affected and the increases will take effect immediately.

Another move to help fill vacancies is that men of 23 years of age with experience of driving motor vehicles will be accepted for training as bus drivers. The lower age limit has previously been 24 years, with heavy goods' driving experience. London Transport, it is stated, is affected by the general labour shortage in London and is conducting a recruiting campaign to fill 3,000 jobs for drivers and conductors in all parts of London. There was to be a delegate conference of the busmen in London on Wednesday this week to discuss this offer of improved conditions and also other reported offers by London Transport. These, it is suggested, are:

The maximum period during which drivers may remain at the wheel without a break to be reduced from 8 hours to 4½.
Slight reductions at some garages in the average time worked per duty, though not amounting at any garage to more than a few minutes.
The maximum time within which a single 7 hr. 40 min. duty may be "spread over" on Sundays and public holidays to be reduced from 12 hr. 40 min. to 9 hr. 40 min.

The busmen recently decided to make a new claim on London Transport for £1 per week additional, also payment for shift working and a reduction in standard working hours.

T.R.T.A. Survey Publication Date

PUBLICATION of the results of the operations of survey of C-licensed vehicles which has been carried out by the T.R.T.A. has been fixed for October 19. As reported last week, publication has been postponed because of the General Election.

Refused to Have Vehicle Weighed

BECAUSE he had been instructed by his employer not to allow police or council officials to weigh the vehicle, a Sheffield lorry driver, Ernest Gosling, of Darlaston, Staffordshire, refused to let the police carry out a routine weight check on his lorry. Instead he showed them a letter from his employer, Francis Ginster, Moxley, Staffordshire. The letter stated that the driver had "strict instructions" not to allow the weighing of the vehicle and the writer, who was the owner, would take sole responsibility. Both driver and owner admitted the refusal to allow the police to weigh the vehicle; Ginster was fined £20, Gosling £5. Inspector John Raw told the court that if the police had been allowed to weigh the vehicle, there would still have been a prosecution, for it

was subsequently discovered by checking the drivers' delivery weight ticket that the lorry was carrying an excess load.

Demonstration for 10-Hour Day

ONE of the liveliest episodes in this year's Trades Union Congress occurred when a lorry driver member of the T. and G.W.U. harangued the General Council for not having done enough to get the maximum working hours per day reduced to 10.



A Thornycroft Trusty 6 by 4 tractor hauling a 60-ton load, the 80 ft. by 26 ft. hull of a dredging barge, through Melbourne streets. Time—Sunday morning

He offered to give Sir Vincent Tewson, chairman of the T.U.C., "some lorry drivers' language" on the subject—outside the conference hall. The member, a Mr. W. J. Hart, said he had been "enslaved to work 11 or 12 hours a day." Mr. H. Nicholas, assistant general secretary of the union, said they had been examining the question with the Ministry of Transport and had made their proposals.

Swansea and Mumbles Replacement

AUTHORITY has now been granted to the South Wales Transport Co., Limited, to operate buses in substitution for the Swansea and Mumbles Electric Railway which is to be closed on a date to be announced. The two replacement bus routes will be between Swansea (Exchange) and Oystermouth (Station Square) and an extension of the

Pontlasse—Swansea (Guildhall) route to Mumbles Pier. Both routes will operate via St. Helens Road and Mumbles Road.

Gravesend—Tilbury Ferry May Cease

THE East Anglian area Transport Users' Consultative Committee has lodged a protest with the British Transport Commission over its decision to apply to Parliament to be released from the legal obligation to provide a ferry service between Tilbury and Gravesend. The committee was told that the Commission will first seek to be released from the obligations to provide a vehicular service when the Dartford—Purfleet Tunnel is opened. It recognised, however, the need, though not a legal obligation, for a passenger ferry, and was prepared to give a modernised service a reasonable trial.

The chairman of the committee, Captain W. H.

machine with spraying and rinsing devices. Refuelling has also been simplified by means of a gravity flowmeter type of pump. In contrast with this, the Western Welsh Omnibus Co., Limited, has opened a garage at Fishguard which will take six vehicles under cover and a further six or so outside. It is stated that the Fishguard area services lose about £6,000 per annum. An associated waiting-room has underfloor electric heating.

Leeds—Bradford Service Hit

NO action is to be taken by Leeds Corporation Transport Committee on a suggestion from Bradford City Transport Department that the through bus service between the two cities be discontinued, leaving passengers to change at the boundary if they wished to travel through. The Bradford suggestion arises from the increasing competition of the diesel train service operated between the cities. In place of the present through service operated by double-deck buses Bradford suggests that there should be separate services operated by each of the two Corporations as far as Stanningley, or a through service operated by single-deck buses. Receipts on the present joint through bus service have dropped by at least £5,000 a year since the introduction of the train service. (There is another service, via Pudsey, operated by S. Ledgard, Limited.)

Alderman John Rafferty, chairman of Leeds Corporation Transport Committee, has said that it was recommending that no alteration be made in the present service. There should be a through service even if receipts were down; there were many passengers who used the route for intermediate journeys. If there was a break in the bus service at Stanningley it would mean two fares being paid instead of one. He also felt that single-deck buses would be inadequate at peak hours.

Municipal Bus Results

Brighton.—Carried nearly 26 million passengers, a decline of about 1½ million on the year. Surplus £3,089.

Derby.—Trolleybuses contributed £19,897 and buses £10,739 to the net surplus of £30,636. Mileage run increased by 1.3 per cent, passengers carried declined from 83.4 to 81.8 million.

Luton.—Share of traffic revenue under co-ordination agreement was £355,247 (£391,097) and gross surplus £38,142 (£28,397). Net surplus £18,694 (£24,298).

Wigan.—Net deficit was £1,695 (£4,062), bringing the accumulated deficit to £9,232, but the net debt is down to £6,152 and the reserve fund totals £96,389.

Edinburgh.—The Budget relief was responsible here for an estimated deficit of £26,000 being turned into a surplus of £2,412. The working surplus was £267,585. Passengers numbered 228.0 million, a drop of 4.7 million. Mileage run was 27.3 million, a drop of 0.4 million.

Leicester.—There was a net surplus of £92,319 (£72,965), which has been devoted as to £30,224 to 14 7½-seat buses, the balance of £11,995 being put to the reserve fund, which now stands at £74,165. Passengers carried totalled 87 million, 2.7 million fewer than in the previous year. The peak year was 1948-49, when 102 million passengers were carried. The bus fleet was run down from 259 to 215, but average seating capacity is higher.

Bus and Coach Developments

Southdown Motor Services, Limited, seeks licences previously held by Little Wonder Coaches, Limited, Petersfield.

Glasgow Corporation proposes a bus service between Alexandra Park and Scotstoun over the route of the present tram service 6. Services previously operated by Corona Coaches, Limited, Sudbury, are the subject of various applications by Mulley's Motorways, Limited, of Ixworth, A. E. Letch, of Sible Hedingham, F. Goldsmith (Sicklemere), Limited, H. S. Theobald and Son, of Long Melford, C. J. Partridge and Son, of Layham, and B. K. Jennings, of Ashen. Meanwhile erstwhile Corona services are being operated by Mulley's Motorways and A. E. Letch under short-term licences.

NIGHT OP. 'CYDER'

Stage by stage story of a man who drives while Britain sleeps—and the Austin that carries him 230 miles every night.



7 p.m. George Peck sets off. With 30 gallons of fuel for the 530-mile trip (UVF 161 averages 19 m.p.g.).



230 miles ahead—Bishop Auckland. 2 minutes away—the East Harting depot of Roudham Transport, contract hirers of Austins to Gaymers.



Sunset, Holbeach, Lincs. For 3 years George Peck's been on this night north run. 30 years ago he started driving—on steam engines.



First stop, Donington. Pork and chips and a meet with Paddy Powell who, like Peck, has been 20 years with Roudhams. Tonight Paddy's on the return run, with empties.



Four veterans. In 3 years, in fog, ice, snow, they've not missed a run. Paddy says, "Austins keep straight on ice."



'The Desert'—Peck's word for the loneliest stretch of the run: Donington to the A.1. at Grantham. Only village—Threkingham, ghostly at midnight.



Owls hoot on Markham Moor as the lorries roar by. "When I feel tired," Peck says, "I have a walk round."



Cold grey dawn at Catterick, a new 7 ton Austin overtaking. Peck's engine's record: 186,000 miles—only repair, new rings at 140,481.



Morning paper. West Auckland 6.45. Soon Peck will sleep. But the Austin has 90 miles of deliveries ahead in the Newcastle area.



End of the road—Peck hands over. His verdict on Austins? "I've never driven anything better. You can't beat them for the small diesel engine."

"Best on the Road"

Mr. R. T. Lawrence, Managing Director of Roudham Transport, says: "The B.M.C. diesel is the best small diesel on the road. Cylinder and crankshaft wear is practically negligible at 100,000. In maintenance and performance Austins compare favourably with other makes, and I would like to stress the help and service we have had from Austin and their dealers, Mann Egerton of Norwich."

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THE NEXT FIVE YEARS

Modernising British Railways

3—BETTER PASSENGER AND FREIGHT SERVICES*

BY the end of 1963, diesel and electric traction will be transforming the passenger services on the main lines of British Railways in the same way as local and cross-country services are now being transformed by the use of diesel multiple-units. The new timetables will be based on the running of main-line trains at regular intervals, giving a faster and more frequent service than before and supplemented by improved and more frequent local and cross-country services. The lines between Paddington and the West of England, between Liverpool Street and East Anglia, and between London and South Eastern England, will be among those having such services fully in operation. Many cross-country services will have been greatly improved, including those between South Wales, Bristol and the South Coast; between Bristol, Birmingham and the North East; from Liverpool and Manchester to Bristol and the South West; and between Hull, Leeds, Manchester and Liverpool.

Coaching Stock

Introduction of further multiple-unit vehicles, coupled with rationalisation and improved operating methods, will result in the stock of locomotive-hauled passenger coaches being considerably reduced over the next five years. The total fleet of passenger-carrying vehicles is expected to be reduced to some 35,000 by the end of 1963, as against 42,000 at the end of 1958, and nearly all wooden-bodied coaches will have been scrapped. Higher standards of passenger comfort in the new vehicles now coming into production will include some of the refinements tested in the experimental vehicles shown in the passenger exhibition at Battersea. The diesel multiple-unit luxury expresses to be introduced in 1960 will be outstanding examples of this: full air-conditioning will be provided, and meals will be served at each seat. They will first operate between Manchester and St. Pancras, Paddington and Bristol, and Paddington, Birmingham and Wolverhampton. New types of catering vehicles will be put into general service

expensive than other types of coupling. The large-scale introduction of automatic couplers depends upon the design of a wholly satisfactory type, and the rate at which it can be produced in quantity. Problems arise such as sharp curves on lines in industrial premises, and although the experiments are being pressed forward they are bound to take some time.

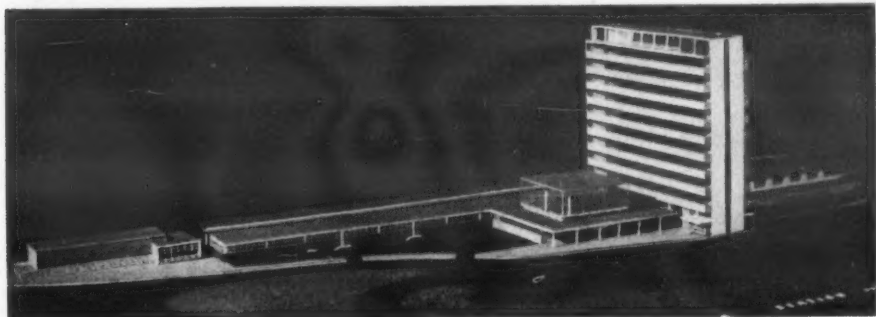
Wagon Design

Development of new and more economical types of wagons will continue, and new types of higher-capacity mineral wagons will be introduced as soon as suitable terminal handling equipment is available. In this connection, it has to be remembered that a very large proportion of traffic is handled at terminals which are not owned by the Commission; the co-operation of traders is being actively sought in the adaptation of equipment at such privately owned terminals. The use of modern, high-capacity vehicles, coupled with a radical improvement in round-trip time, will lead to a considerable reduction in the total number of wagons.

In the field of door-to-door container transport, the numbers of special-type containers will be increased, and intensive study will be directed towards finding a cheaper and quicker method of road-rail transfer, and towards improving the payload-tare weight ratio of containers. It is proposed to introduce more "freight liner" trains of containers on specially fitted wagons hauled by diesel locomotives at a high average speed and giving a very fast door-to-door service. One such train, the *Condor*, is already in service between London and Glasgow.

Terminals

The greatest handicap from which the railways suffer in the competition for freight traffic is the high cost and inefficiency of outmoded terminal facilities, particularly in some of the large goods stations in London and some other centres. It is essential to modernise these depots physically. It is even more important to modernise working



Model of the reconstruction of Plymouth Station now in progress

to supplement the existing restaurant cars: examples are the miniature buffet car, serving light refreshments, and a new type of car offering a range of grilled dishes.

Much more will be done to improve carriage cleaning, particularly in connection with diesel services. New depots, or improvements to existing equipment, will be provided at many places, including Edinburgh, Glasgow, Leeds, Bradford, York, Hull, Colchester, Shoburyness, East Ham, Enfield Town and Hertford East. The existing depot at Ilford will be substantially enlarged by the provision of a new inspection and maintenance shed for multiple-unit electric stock.

Station Reconstruction

Many passenger stations will be completely or partially modernised, some in conjunction with electrification, such as Euston, Kings Cross, Coventry, Stafford, Birmingham New Street, Wolverhampton, Manchester London Road, Colchester and Barking; others because they do not meet today's requirements, including Peterborough North, Grantham, Sunderland, Wakefield, Plymouth, Reading, Oxford, Port Talbot and Kidderminster. Leeds City and Central stations are planned to be combined on one site to give much better interchange facilities to passengers and offer substantial operating economies. At a large number of other stations, modernisation will be carried out on a smaller scale, but with a marked improvement in passenger amenities. Waiting rooms will be refurbished and redecorated, refreshment rooms modernised, new lighting provided, and many more ticket-issuing machines installed.

The presence of parcels traffic on the platforms of large passenger stations has always been a nuisance, and the aim is to segregate this traffic as far as possible and free the platforms for passengers. Parcels concentration depots will be set up at the centres where the bulk of this traffic originates. They will be equipped with mechanical handling devices and will cover wide areas by road and rail feeder services; they will be served by a network of express parcels trains, which will give a fast door-to-door service. Four concentration depots are now being built—at Liverpool, Oldham, Glasgow and Kensington—and many others are planned, including those at Marylebone, Kings Cross, Birmingham, Leicester, Nottingham, Manchester, Leeds and York.

Freight Traffic

The next five years will see substantial and continued progress in developing faster and more reliable freight services; freight train speeds will be increased by the use of diesel and electric locomotives, and by the more general use of continuous-braked wagons. Express freight trains will run to a published timetable between large mechanised depots at main centres and railheads, and will be supplemented by road and rail feeder services to give quicker door-to-door transits.

By mid-1960, virtually all merchandise wagons will be fitted with vacuum brakes. The original programme for the fitting of continuous brakes to mineral wagons was slowed down in 1958. Further progress in the fitting of mineral wagons depends upon the provision of an improved form of coupling satisfactory both to industry and the railways, experiments are now being carried out with various types. Among these are automatic couplings, which offer potential savings in time and staff in marshalling yards, although they are far more

methods, a matter to which regional managements have been instructed to give high priority in consultation with the trade unions. During the next five years further schemes will be developed for concentrating freight traffic at a smaller number of depots and railheads, each covering a wide area with road or rail feeder services. For example, by 1963, the London Midland Region will have virtually completed a scheme for concentrating at some 50 depots the sundries traffic at present handled at 170 points. The plans of the Eastern Region will enable the sundries traffic now handled at nearly 100 depots to be dealt with at about 30 in future; and 90 sundries depots of the North Eastern Region will similarly be reduced by two-thirds when plans are completed.

Many of the depots which will be retained will require extensive reconstruction and mechanisation to deal with the extra traffic; these include Glasgow Sighthill, Stockton, Hull, Leeds, Bradford, Newcastle, Sunderland, Bricklayers' Arms London, Southampton, Cambridge, Harlow, Norwich, Ipswich and Boston. The type of mechanical handling equipment to be provided at these modernised stations will vary according to local requirements. For example, conveyor belts will continue to be installed at the larger stations, where a steady flow of traffic is assured. At other places, battery-electric trucks will be used. An experiment is in progress at Newton Abbot goods shed with a driverless electric truck guided en route by a cable laid in the floor.

Concentration at Mechanised Depots

Similarly, the handling of wagon load traffic will be concentrated at mechanised depots. By 1963, the Western Region expects to have constructed 15 concentration depots which will handle the bulk of their traffic other than that dealt with in private sidings; the London Midland Region proposes to reduce the total number of its wagon-load depots to some 180 ultimately—some progress will have been made towards this by 1963. The concentration of traffic at larger goods stations, with extended collection and delivery by road replacing branch line and stopping goods trains, will lead to changes in the cartage fleet. For example, there will be a reduction in the proportion of 3- and 6-ton capacity three-wheeled tractors, which are suitable only for short-range town deliveries. The proportion of four-wheeled tractors of similar capacity and of rigid vehicles more suitable for longer runs will increase, as will the number of specialised vehicles.

The handling of household coal is being examined in conjunction with traders. The Commission believes that changes in the methods employed in coal distribution are essential to enable coal to meet the competition with which it is now faced, and British Railways is anxious to play a full part in promoting these changes. A fully mechanised coal depot has been built by one large firm at Palace Gates in North London; it replaces seven small depots. Each week three full trains are worked direct to the depot; they consist of 18 21-ton self-emptying hopper wagons. All the work at the depot, from the arrival of the wagons to filling the sacks, is done by three men only, with mechanical equipment. Further depots are planned at Aldershot, Birkenhead, Carlisle and Glasgow.

A corollary to the concentration of freight traffic at fewer and more modern depots is a considerable reduction in the number of marshalling yards. The increased use of through services between major depots will reduce the need for many yards; others

(Continued on page 22)

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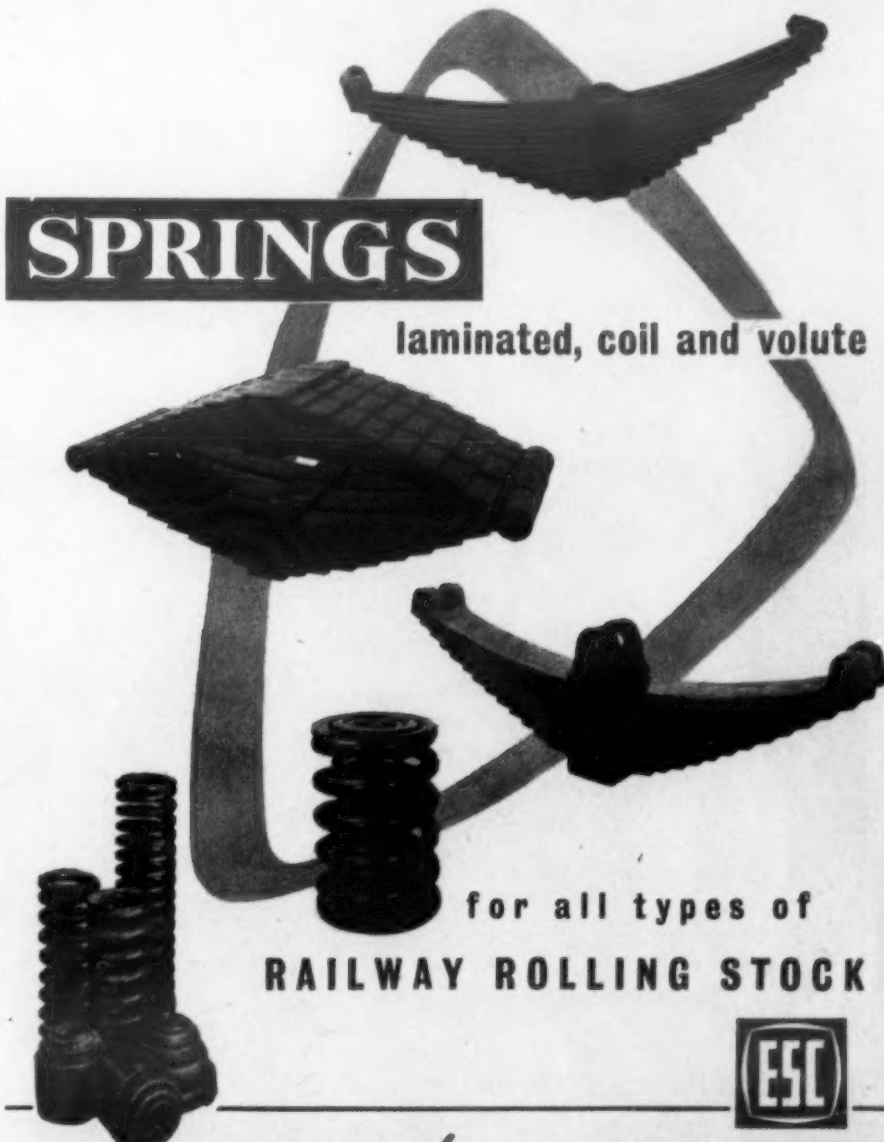
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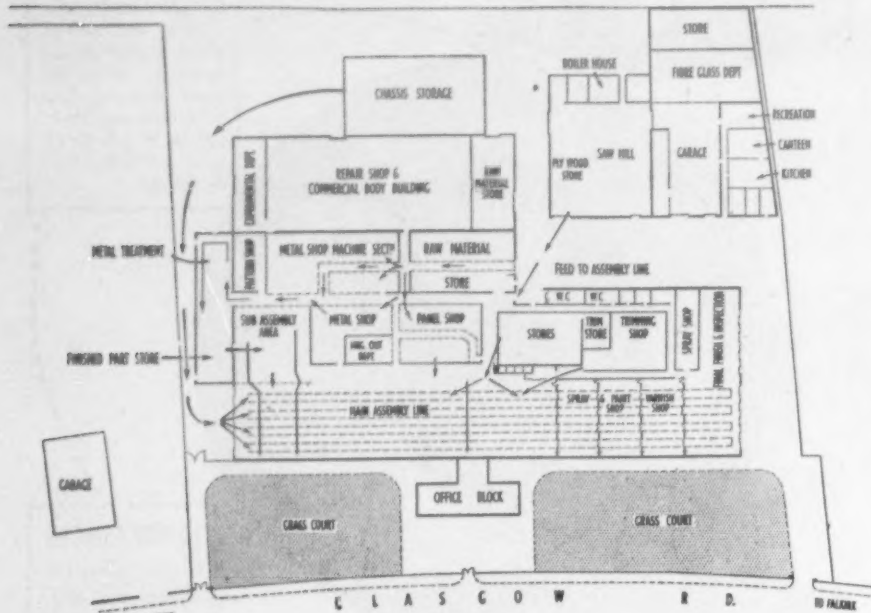
* No. 2 appeared September 5.

COACHBUILDING IN SCOTLAND

Fine New Works of Alexander Company

WIDE use of pallets and stillages and a floor space designed for progressive flowline production through component and main assembly lines are features of the new coachbuilding works at Glasgow Road, Falkirk, of Walter

and around Falkirk. Several more Leylands and some ex-W.D. Dennis lorries were similarly converted during the next year or so; by 1926 bodybuilding had become an established part of the firm's business, giving full-time employment to



Floor plan and flow pattern at the Alexander works are shown in this drawing

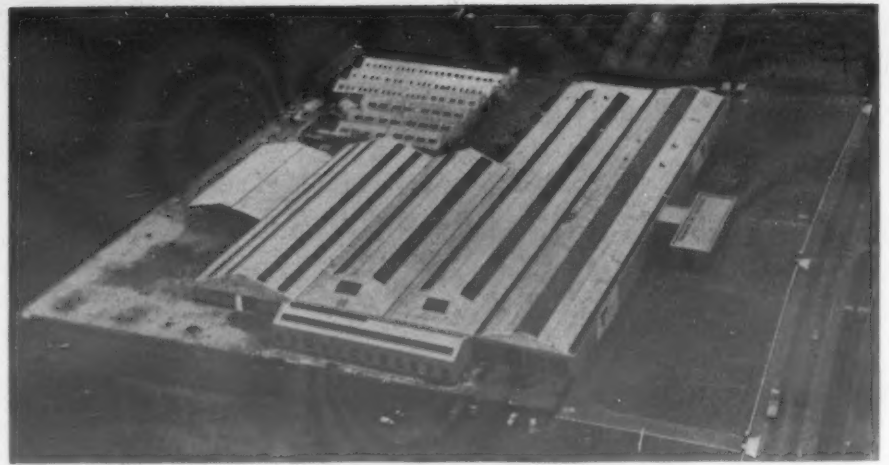
Alexander and Co. (Coachbuilders), Limited. The main move to the new premises from the old bus-building works at Drip Road, Stirling, where lack of room for expansion or further introduction of modern production methods was seriously hampering the company's ability to keep pace with mounting orders, took place in August, 1958. Since then, production at Falkirk has gradually been expanded to reach a present level of eight to 10 buses a week and there is also considerable capacity for repair work and goods-vehicle bodybuilding.

The move to Falkirk is in fact a return to home ground for this pillar of the Scottish bus industry, for it was in neighbouring Brown Street, in the Camelon district of Falkirk, that the bus company founded by the late Walter Alexander built its first passenger body in 1922. The first body was built for the conversion of an ex-R.A.F. Leyland 3-ton lorry for use on the company's own bus services in

four coachbuilders, a painter, a trimmer and a blacksmith at the Brown Street works.

Move to Stirling

The Drip Road premises in Stirling had been used as a bus depot for some years by the Alexander concern before it was decided to move the expanding coachbuilding side of the business there in 1930. The building actually became available as a result of W. Alexander and Sons acquiring the Scottish General Omnibus Company, whose Stirling depot in Forth Street was large enough for both General and Alexander vehicles. The covered space comprised two shops totalling some 30,000 sq. ft. of floor space and the old Pioneer Garage, and after some necessary alteration and equipping, production of single-deck bus and coach bodies was started there in 1931. The bulk of the early production went to the operating

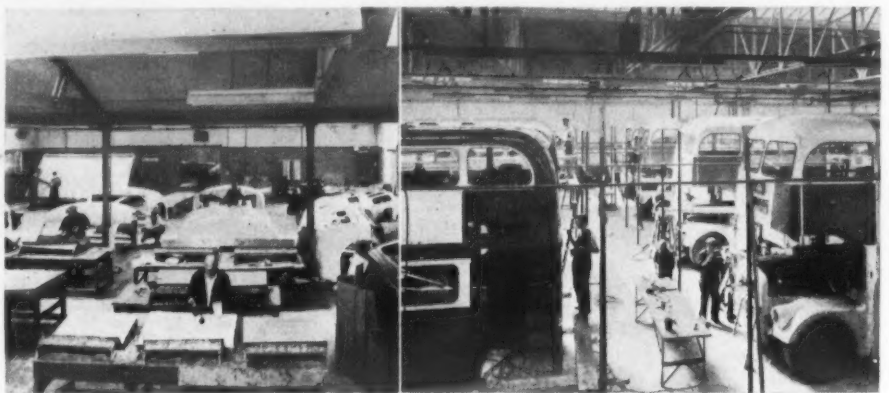


Aerial view of the new Walter Alexander coachbuilding works at Falkirk

side of the Alexander company and, later, to the various companies in the S.M.T. Group, of which W. Alexander and Sons was a prominent member. Bus bodies were also built for operators outside the group as early as the 1930s, notably for Dublin United Tramways and operators in Northern Ireland.

With partial submersion of the identity of the the old family business in the S.M.T. Group and

a move to new premises was planned. The new Falkirk works occupies a 9-acre site with frontage on Glasgow Road and comprises nearly 212,000 sq. ft. of single-storey factory area and nearly 5,000 sq. ft. of office area in a two-storey block. The office block is projected forward of the main factory and is flanked by two grass courts, presenting an extremely attractive frontage to the road. The factory area is housed in two separate build-



A section of the plastics moulding department (shortly to be extended) and, right, view across the four-track main assembly line

the promise of imminent nationalisation, the desire to retain the bodybuilding part of the enterprise as a family concern led to the formation late in 1946 of a new company under the present title, Walter Alexander and Co. (Coachbuilders), Limited. By that time, expanding business had led to expansion and reorganisation at Drip Road. New building had added a further 30,000 sq. ft. of production space, to the absolute limit of the site, while the sawmills, timber-assembly shop and various raw-material stocks had overflowed to other premises in the area.

It was from these rather difficult conditions that

ings—the main production unit and a smaller block housing sawmill and plywood store, plastics production, boiler house, canteen and so on.

There has already been extension by adding a large new bay to the main building for expansion of the raw-materials store. Assembly of goods bodies and the bus repair section have also been transferred to the new bay from the smaller block, permitting an extension also of the plastics department. A smaller extension of the main building also now houses the metal-treatment section, which was an embarrassment in the main building due to

(Continued on page 20)



THE

Tougher

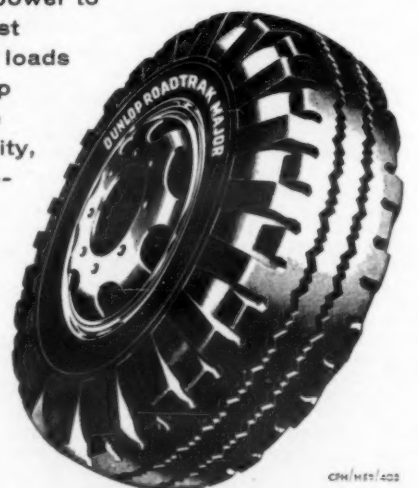
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CPH/MST/200

EDINBURGH'S CLASSIC SCENE



Next week the Municipal Passenger Transport Association holds its 58th annual conference in Edinburgh. Here we publish recent pictures of municipal buses at work, many in classic surroundings. Above is a black-and-white livery city tours coach turning into Mound by the National Gallery



One of 50 new stressed-skin Leyland Tiger Cubs on Netherbow opposite John Knox House



Back and front views of Titans on Mound outside the Royal Scottish Academy



Daimler and Guy double-deckers on Princes Street by the Scott Monument

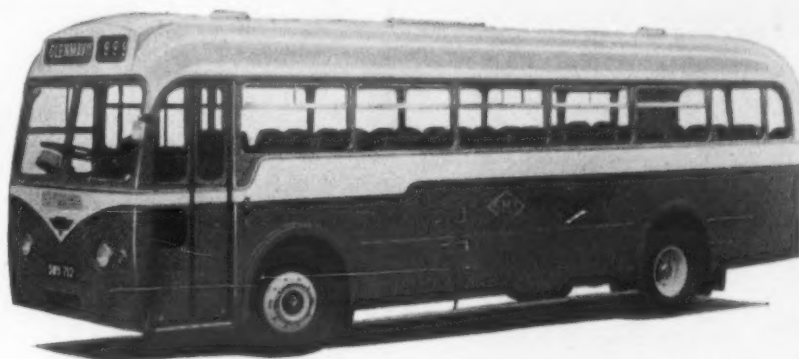


The Guy in the picture illustrates the practice of the Edinburgh undertaking of showing on the indicator blind that a bus is on short working



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LAST TROLLEYBUSES FROM BOW AND ILFORD

Third Stage in L.T.E. Scheme (Cont.)*

It was not until June 7, 1907, after the railway level-crossing at Barking had been eliminated, that the two sections of tramway constructed by Barking Council were joined, but a through Ilford Broadway-Barking Broadway service did not materialise until 1914.

In February, 1908, West Ham Corporation commenced through electric services over the former North Metropolitan horse routes between Bow Bridge and Green Street and between Bow Bridge and the Thatched House on the Leytonstone route. A through service of electric cars commenced on December 1 between Bow Bridge and Clapton via Whipps Cross and Leyton; this was jointly operated by Leyton and West Ham. East Ham had made several attempts to gain control of the Northmet's isolated section of horse tramway along the Romford Road and finally succeeded in doing so in 1908. Electrification was immediately put in hand and completed in October of that year, except for the section over the railway bridge at Woodgrange Park Station. West Ham's electric service from Bow Bridge was extended to one side of the bridge and East Ham's Ilford service was extended to the other side. On completion of the bridge reconstruction on November 11, 1908, a joint West Ham and East Ham service was provided between Bow Bridge and Ilford Hill. Ilford Council was reluctant to allow West Ham cars to enter its territory and it was not until March 10, 1909, that the through service to Ilford Broadway was resumed.

During June and July, 1908, the London County Council, which was gradually electrifying routes on the conduit system in other parts of London, experimented with the G.B. surface-contact system,

developed by Griffiths and Beddell and already employed in Lincoln, along Whitechapel and Mile End Roads between Gardiner's Corner and Bow Bridge, using three specially equipped cars. The system was not successful and the line reverted after 23 days to horse traction only. The route was then re-equipped for conduit operation between Gardiner's Corner and Burdett Road and overhead trolley thence to Bow Bridge, where connection was made with the West Ham network, and opened for electric services on July 30, 1909.

Through Running Achieved

Through running was not possible immediately, because cars of the eastern authorities were not equipped for operation over conduit track, nor were they acceptable to the L.C.C. in some other respects. As sufficient cars were adapted, through services to Aldgate were commenced, the section from Gardiner's Corner to Aldgate having been electrified late in 1906 in connection with an electric service along Commercial Road. The through service between Whipps Cross and Bow Bridge was extended to Aldgate on May 11, 1910, and became a joint route of the L.C.C., West Ham and Leyton, while the Ilford to Bow Bridge service was projected to Aldgate on August 11, 1910, becoming the responsibility of the L.C.C., West Ham and East Ham. Once again there was disagreement with Ilford Council, when the proposal to run L.C.C. bogie cars with magnetic track brakes over its tracks was put forward. It was soon settled without any interruption to the through service.

On January 1, 1913, the L.C.C. gave route numbers to all its routes, and the two trunk routes from Aldgate to Leyton (Bakers Arms)—which had been extended from Whipps Cross some three

weeks earlier—and to Ilford Broadway became 61 and 63 respectively. The weekend service from Aldgate to the "Rising Sun" was also numbered 61, until it was withdrawn in 1926. Other operators of these services also used the same route numbers, but the two local Ilford routes were not numbered until after the advent of London Trans-

Broadway and, on October 3, 1934, the route was numbered 91, while the Chadwell Heath-Barking Broadway service became 93 on the same date.

Adoption of Trolleybuses

The first sections to be converted to trolleybus operation were the two routes in Ilford, which



An N1 type trolleybus with B.R.C.W. body on A.E.C. chassis on Route 663, Chadwell Heath—Aldgate, at Ilford; SA2 (Leyland-M.C.W.) chassis on last day at Barking; below, South African type 8-ft. wide vehicle visiting Aldgate terminal station for the only time for an Omnibus Society party on the last evening of service alongside an N1 arrived from Leyton on 661; and an RTL from Bow garage on the substitute Leyton-Aldgate service at Stratford

port. Following the removal of the Clock Tower at Ilford Broadway in January, 1923, and the remodelling of the tracks at that point, the local service from Barking was extended to Barking

became 691 and 693, and which superseded the trams on February 6, 1938. A Saturdays only service, numbered 692, was introduced at the same time; this ran from the "Horns," Newbury Park, on the Barking route, to Chadwell Heath; it was withdrawn ten months later.

The two trunk routes, numbered 61 and 63, were among the last half-dozen tram routes in East London and the two were withdrawn after traffic on November 4, 1939, trolleybuses taking over the next day. The new services were renumbered 661 and 663 respectively. London Transport introduced a new trolleybus service on October 10, 1941; this was numbered 695 and ran between Bow Church and Chadwell Heath. It was withdrawn on January 6 this year and route 663 was extended, on Mondays to Fridays, to Chadwell Heath in its place. Thus a proposal for a through service from Aldgate, which had been discussed by all interested operators as long ago as 1913, at last materialised.

GROWING SELF-SUFFICIENCY

New Indian-Built 2-8-4 Tank Engines

TRADITIONALLY dependent on imports, Indian railways have in recent years made a determined and successful effort to become more self-sufficient. As a result of the rapid industrial expansion that has taken place over the last 10 years, and the deliberate policy of fostering the manufacture of commodities required by the railways, the purchase of indigenous stores has more than doubled, from 63.2 crores of rupees in 1950-51 to 158.5 in 1957-58. Another achievement is that wagon production has risen from 6,000 per annum in 1950 to a present figure of 20,000, so that whereas before there was a dependence on imports, the country can now export an appreciable surplus.

Retention of Steam

Concerning steam locomotives, and in this respect it must be remembered that present plans envisage that even in 1975 some 50 per cent of all traffic will still be handled by steam power, it is now claimed that the position is one of complete self-sufficiency. The recent completion of the large Chittaranjan locomotive works, together with new steel plants which are now in operation, has for the first time established the basic conditions for an indigenous locomotive industry in so far as steam power is concerned. Apart from the obvious advantage of cheap manufacture, an important reason for the retention of steam is that at present it provides an economical market for the Indian coal industry and accounts for about one-third of the total output.

It is estimated that, allowing for expansion, the present annual consumption of coal in the region of 15 million tons would rise to 50 million tons by 1975 if the railways were to depend entirely on steam power. It is fully realised, however, that this would be wasteful, and indeed impracticable since by that time the demand for coal would be much wider, and the cost probably much higher. It is therefore, proposed that by 1975 20 per cent of the traction should be diesel, and 30 per cent electric. If this is achieved only 27.5 million tons of coal will be required, inclusive of the amount needed for generating power for electric traction.

A 2-8-4 Tank Design

In the meantime, therefore, the need for new steam locomotives, and especially for designs that can perform efficiently on low-grade coals will remain, and in March of this year the Chittaranjan works produced its first entirely new all-Indian design, consisting of a batch of 10 heavy suburban 2-8-4 tank locomotives. The need for a locomotive of this type arose mainly out of the rapid growth of suburban traffic in the larger towns. To obtain information which would help to evolve a standard design whose specification would meet most requirements a questionnaire was sent to all the broad-gauge railways, and an analysis of the replies showed that the engine would be required to accelerate rapidly with a load of 10 bogie coaches, have an adequate coal and water capacity for runs of up to 60 miles, and an axle load not exceeding 17 tons.

The 10 locomotives so far constructed are now undergoing tests in various regions, and if the results are satisfactory a bulk order will be put in hand. A point of interest is that the drawing office work entailed a total of 45,000 man-hours, and that in evolving the design, local technical and production facilities were taken into account. To cite an example, during the early stages it was reported that the works were experiencing difficulties in procuring steel castings to schedule, and to obviate this some parts of the new locomotive, including the smokebox saddle, were arranged for fabricated all-welded construction.



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*Below: An aerial view of our recently built
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DEVELOPMENT OF AIR TRANSPORT

In the Service of Humanity

By Sir WILLIAM P. HILDRED, C.B., O.B.E., Director-General,
International Air Transport Association*

WE are just completing the first 40 years of scheduled commercial air transport and only a few days ago we passed the 40th anniversary of the founding of International Air Transport Association as the agency for international co-operation in transport aeronautics. These 40 years can be divided into two 20-year periods. From 1919 to 1939, we took the primitive aeroplane which the 1914-18 war had given us and put it to work in a rudimentary way in peaceful commerce. From 1939 to 1959, we have applied the tremendous technological development of the second world war to the carrying of larger burdens over longer ranges at greater speeds and come at last into the era of jet transport.

To give an example without figures of the growth of air transport I would say that the smallest inter-city helicopter operator among I.A.T.A.'s members carries today as many passengers as all the members of I.A.T.A. did in 1920. Many of our airlines today carry as much in a year as all the members of I.A.T.A. did in 1938.

Phenomenal Progress

The development of air transport since the end of the 1939-45 war has been phenomenal. The result in terms of the work performed by the scheduled airlines of the world—a few million passengers carried in 1946, 90 million last year; 900 million kilometres flown in 1946, 3,000 million last year. In 1958 the scheduled airlines carried more passengers across the North Atlantic route alone than the whole membership of I.A.T.A. carried anywhere in 1938.

The implications of that progress in terms of the airlines and the aircraft they operate can be read from other indices—revenue passenger kilometres 10,000 million in 1946, 70,000 million in 1957; operating revenues up from \$1,000 million in 1946 to \$4,000 million in 1958. But by the same token, operating expenses up from \$1,100 million in 1946 to \$4,360 million in 1958; and 1958 reveals an overall operating deficit of \$160 million. The safety figures show a reduction from three fatalities per 100 million passenger kilometres down to 0.4 fatalities per 100 million passenger kilometres.

Comparisons with 1946

Immediately after the war, the airlines found themselves with an assortment of two-engined and four-engined aircraft, typified by the Douglas DC3 and DC4, designed to carry 22 and 44 passengers respectively. Their still-air ranges were in the neighbourhood of 1,500 and 3,000 miles, and their maximum cruising speeds were 190 and 227 m.p.h. respectively. By comparison, the large four-engined intercontinental jet aircraft now coming into service have a capacity of up to 160 passengers; their still-air range has been raised to over 5,000 miles and they cruise at more than 550 m.p.h.

So, at one and the same time, the speed of this new generation of aircraft has more than doubled, their range has substantially increased, and their passenger capacity has more than trebled. Aircraft weights have increased fourfold, engine powers have multiplied by a factor of six, and, of course, not to be outdone, manufacturers' prices have risen eightfold over the same period. Equally important, the aircraft and its associated equipment have become vastly more complex.

Increased Productivity

The most useful result of the evolution which has led us to these large and complex jet aircraft is their markedly increased productivity. "Productivity," as applied to an aircraft, refers to the rate at which it can do transport work, and is calculated by taking average speed from engine start to arrival, and multiplying it by payload. A recent economic survey by I.C.A.O. indicates that, assuming average operational conditions, the productivity of the Boeing 707-420, in ton-miles per hour, is more than 8½ times as great as that of the DC4.

Direct operating costs are the normal yardstick by which the commercial desirability of an aircraft is assessed. The only way to keep ahead of the rising costs of materials and services is to improve productivity and expand the market. How well this has worked is testified by the fact that more passengers are flying the Atlantic today in Super-Constellations than flew the route in DC4s when the I.A.T.A. traffic conferences began and at fares which have been reduced by 30 per cent in shillings and pence. In terms of the working time required to earn the price of the ticket in manufacturing industries in the U.S. and the U.K., the reduction has been 60 per cent.

* Abstract of an address presented to the annual meeting of the British Association for the Advancement of Science.

Since the price of the jet and its operating cost per mile are high, the airlines have been criticised for paying an excessive amount for speed. The fact is that the speed is virtually incidental: the jets carry more seats and what the airlines are buying is the lower cost per seat-mile. This is the present position of the industry. The technology of air transport dictates that in order to keep one jump ahead of our own costs, airlines must use more efficient and more economical aircraft. This means aircraft of much greater productive capacity, which must be filled with a larger payload. To get this increased payload, charges to the consumer must be reduced. This is a circle, but not necessarily a vicious one, for the potential demand for airline service is so vast that present carryings are infinitesimal in comparison with what we hope for when we can cater for the millions who want to travel for pleasure.

Despite the complexity of world airline operations, the conference pattern of agreed rates and fares has been extended to every area of the world. It has been flexible enough to keep pace with the rapid expansion of routes and traffic since 1946, and to provide for the blue ribbon luxury services of the North Atlantic and the regional feeder services of less developed areas. It has also been strong enough to withstand many drastic fluctuations in exchange rates as well as great fluctuations in seasonal traffic. The fact that less than 3 per cent of the conference resolutions have ever been disapproved, even in part, by governments, is an indication of their close attention to the public interest.

Beneficial Agreement

This pattern of agreement has been realised without sacrifices of the individuality of any of the airlines which are a part of it, and without interfering with the normal and beneficial workings of competition. While the conferences have fulfilled one obligation to governments by maintaining their rates at an economic level which will not touch off cut-throat rate wars and create a drain upon public treasuries, they have also been able progressively to reduce the price of air transport to the public.

We must get passage fares and cargo rates down still further. The fares are like a dam on a large river. Lower the height of the dam even a little and a very large volume of water will flow over. Raise it and the overflow stops. It is the task of the conference to recognise these facts of the life about us and come up with fares and rates which governments can approve and which the public will find too attractive to ignore. The potential is there. In 1957, Americans alone spent \$593,000,000 on air transport of all types. This is an increase of 460 per cent over what was spent in 1946, but it is still only 0.2 per cent of the total spent on goods and services in the country in 1957.

The Need for Capital

The airlines last year handled a record turnover of over \$4,000 million, did an inordinate amount of work and finished the year with an operating loss of \$160 million. And this at a time when they are all finding new capital of an unprecedented order of magnitude, for their new jet fleets. Capital investment in the airlines over the last 10 years shows an increase of 150 per cent on the average. Having done this, will they be able to find vastly greater amounts in the next few years? I am confident that the answer is affirmative, and I am not being a Micawber. Our position is that of any industry which is in the process of retooling at the same time as it is carrying on its normal commercial activity. But we are also an industry with a high sensitivity to temporary external vicissitudes. Even if there is a depression, people go on drinking water and eating food; but a slight recession will check pleasure air travel very quickly.

We have to recognise that air transport is a "system" and we must look at new technical developments in the light of its place in the whole chain of facilities and arrangements which are required to get a payload from point to point with optimum speed, safety, and economy. We can cope with the jets; and the terminal facilities, the airports, the runways and the navigation aids they require will come along in phase. But if manufacturers, inspired and driven by the dedicated designers in their project offices, suddenly throw at us a supersonic aircraft which can do 2,000 miles an hour before the rest of the system is in phase to accept it, we shall run into difficulty. We must advance like an army in good order: the flanks and the centre, the air cover and the logistics must maintain effective contact and the technical side must not hurry us beyond what the rest of the system will bear.

TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lecon House, Theobalds Road, London, W.C.1.

September 22—Ceylon.—Colombo Health Department for five 10 to 15-cwt. capacity AMBULANCES for (minimum) six sitting or two stretcher two sitting patients and attendant. Tenders to the Chairman, Tender Board, Ministry of Health, P.O. Box No. 500, First floor, Gale Face Secretariat, Colombo. (ESB/20862/59.)

October 2—Portuguese East Africa.—Ports, Railways and Transport Department for two EXCAVATING and LOADING MACHINES for handling rock mineral. Tenders to the Ports, Railways and Transport Department, Lorenzo Marques. (ESB/18924/59.)

October 2—Vietnam.—International Co-operation Administration for 60 complete petrol-engined 3 cu. yd. TIPPING LOBBIES. Tenders to the Central Purchasing Authority, P.O. Box HS, Saigon. (ESB/20918/59/ICA.)

October 6—Spain.—International Co-operation Administration for airfield equipment including FIRE EXTINGUISHERS, RUNWAY SWEEPERS and nine aircraft-towing TRACTORS. Photocopies of tender documents from Export Services Branch, B.O.T., price 18s. (ESB/20882/59/ICA.)

October 7—Ceylon.—Colombo Port Commission for 2 sets of TRACTION BATTERIES for cargo-handling trucks. Interested firms should get in touch with the Crown Agents for Overseas Governments and Administrations, 4 Millbank, London, S.W.1, who are acting as purchasing agents.

Export Opportunity—Western Germany.—Alfons Haar, Maschinenbau, Hamburg-Lurup, Fangdickstrasse 67, has informed the British Consulate-General at Hamburg that it would like to enter into negotiations with United Kingdom manufacturers

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

R. H. Neal

No ordinary dividend is being paid by R. H. Neal and Co., Limited, now controlled by Steel's Engineering Products, Limited. This compares with a total of 12 per cent paid for the previous year. Group net profits were £36,727 (£32,480) after tax of £39,961 (£52,498).

Silentbloc

A dividend of 25 per cent (same) is being paid by Silentbloc, Limited. Group net profits were £149,798 (£134,476) after tax of £156,638 (£162,761). A one-for-six "rights" issue is to be made at 3s. a share. The directors forecast that the dividend will be maintained at 6d. a share on the increased capital.

Clayton Dewandre

Clayton Dewandre Co., Limited, is paying a 5 per cent interim (same). Group surplus on trading account for the six months ended June 30, after depreciation but before tax was £224,820 (£171,811 for the same period of last year). A one-for-one scrip issue is to be made by capitalising £750,000 of reserves, which have been increased to £777,251 by £218,241 resulting from a revaluation of freehold properties. The board have issued privately 2,370 £1 ordinary shares at 65s. 4½d. a share ex the interim dividend. As a result, issued capital is now £750,000.

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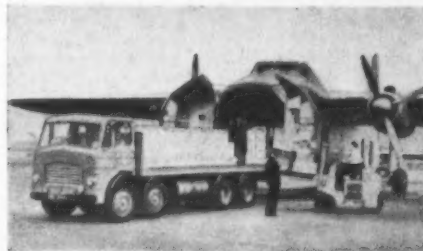
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TRANSPORT ECONOMICS

2—Track Costs*

By Sir REGINALD WILSON, M.Inst.T., Member,
British Transport Commission

BEFORE we consider the cost to society of providing the track (including the right-of-way) needed for carrying by road or rail, let us inquire what the carriers themselves actually pay for it. There has been considerable misunderstanding on this point, and it inhibits reasonable discussion. The costs of rail track, as borne by British Railways today, are about £120 million a year. For the 19,000 miles of route, this represents just over £6,000 a mile, and accounts for almost one-quarter of the total of all the railway's revenue expenses. Included in this track charge is interest on the railway borrowings taken over from the past. Road operators do not pay for track, except in the sense that they pay fuel duty (plus an annual sum as vehicle duty) which is normally between one-tenth and one-seventh of the total cost to the operator of running a heavy road vehicle. There are 190,000 miles of road—ten times the mileage of rail—and the total sums paid in fuel and vehicle duty will be about £400 million a year; this represents some £2,000 a mile—but the road "miles" are often rather different in quality and purpose from the railway "miles."

Of more relevance, probably, are the payments made for track in relation to the traffic passing. The railway total, if averaged over the whole country but distributed very roughly for present purposes between passenger trains and freight trains, works out at seven-tenths of a penny per passenger-mile, and five-tenths of a penny per ton-mile. By contrast, the fuel duty paid by road users works out at something like two-tenths of a penny per passenger-mile for the bus, and three-tenths of a penny per ton-mile for the heavy lorry; to this must be added a quite minor element for vehicle duty. The bulk of the fuel and vehicle duty is produced by the five million private cars and small delivery vehicles, and these make a greater relative contribution than the bus and heavy lorry because their fuel consumption is high in relation to their carrying capacity; but it is the bus and heavy lorry which specially compete with the train.

Power Consumption Comparison

Alternatively a comparison can be made on the basis of power consumed—a basis which is no worse than any other, and better than most. The road carrier pays 2s. 6d. per gallon of oil for the use of the track, as it were, and the cost of track to the railway carrier works out at 6s. or 7s. per "gallon" (converting all power consumed into terms of oil equivalent).

The relative position between competitors can therefore be summed up and set out as shown in an accompanying table.

In other words it is not true that these road competitors are unfairly treated in that they pay

fuel duty. On the contrary, they get their track at something like half the cost borne by the railways—a surprising conclusion in the light of current propaganda on this subject. I must repeat, however, that the tracks are often different in quality, the railway track being normally

COMPARISON OF TRACK COSTS

	Road 190,000 £2,000 (tax)	Rail 19,000 £6,000 (cost)
Miles of route	190,000	19,000
Paid per route-mile	£2,000 (tax)	£6,000 (cost)
Paid per passenger-mile (heavy carrier)	0.22*	0.7d.
Paid per ton-mile (heavy carrier)	0.34*	0.5d.
Paid per unit of fuel consumed	2s. 6d.*	6s. 6d.
Proportion of track cost to total cost	Seventh or tenth	Fourth or fifth

* Plus a small element for vehicle duty.

straighter, better graded, and furnished with signalling services.

Track Cost to Society

Another point from current propaganda is that a big "profit" accrues on road taxation after paying for the roads. And so it may appear, but is it truly so? The existing road and rail systems cannot be costed out on a factual basis. Any estimate must depend on great assumptions about value inherited from the past, and there are many items missing, such as control and lighting, from the current expenditures on the roads.

Taking the capital side first, what would be the charge for interest on society's investment in track? Well, the historical cost of the road systems is not known, and if it were, it would hardly be relevant to an assessment of the social costs of today; if we charge interest at all it can be argued that we ought to charge both road and rail on current values. Who shall say what these are? An assumed present-day value for the sites through which track passes, plus current construction costs, would obviously give formidable totals. If the permanent way and signalling installations of the railway system can be regarded as having a book value of some £650 million, this figure would presumably need to be greatly enhanced to bring it to present-day money, and even more to take account of today's land values.

Current Values and Costs

The current "value" of the 190,000 miles of existing road system has been put at many thousands of millions of pounds. Such figures need not surprise us. Current estimates are of the order of £10 million a mile for roads in central London; £4 million a mile for the projected tube; about £0.4 million for roads in "urban countryside," and perhaps £0.35 million a mile for a new double-track railway (without signalling) outside urban areas, and many times this in built-up areas. There is no doubt, therefore, about the greatness and value of the "legacy from the past." The charge for interest might amount to hundreds of millions of pounds a year.

As for current costs, they consist chiefly of maintenance, signalling, policing, lighting, cleansing and so forth. It is estimated that the normal cost of road maintenance ranges widely—perhaps between £200 and £1,200 a mile—say £80 million a year in total. The total for items like signalling, police, etc., is not known with any exactness, but would be minor by comparison. On the railway the maintenance of track is about £65 million a year, excluding signalling.

The predominant item in the social cost of track is thus a notional one—or at least it is entirely notional so far as roads are concerned—and this is one reason why attempts to assess what the roads and the railway tracks are really costing the community, comparatively to each other, have never been satisfactory or successful. Either they ignore the major element of rent or interest altogether, or their assessments of it fail to command general acceptance. Another reason is the imponderables, such as the accident rate—put by one authority at a cost of £175 million a year on the roads. The figures resulting from such speculations must obviously be treated with great caution; in any case they are incomplete. Ultimately we must admit, I think, that we do not know, and cannot know within any acceptable margin, the true costs of our existing road and rail systems. By the same token, however, it is not true, or certainly not provable, that an excessive levy is taken from the road user compared with the rail user.

"Allocation" of Track Cost

But what significance, anyway, is possessed by these grand totals which seek to add up the road system on the one hand and the railway on the other? Are there two quite separate communities involved? Two separate supply industries, perhaps, two lots of engineers, two virtually separate administrations, and I had almost said two different schools of economists! But the passengers and traders will use road or rail, whichever suits them, and both, and our problem in economics is to know what each carrier individually should pay as his fair whack for the privilege of moving his vehicles over particular parts of the track at particular times.

Not that there is, in road theory, a dearth of formulae from which to choose. The unladen weight of a vehicle, its laden weight, the differential or "incremental" costs of providing track, the space-time occupation of track or parking facilities, the capacity of a vehicle in tons or passengers, its potential earning power, the value of the road to the carrier in question, engine power, fuel consumed, the cost inflicted on other users of the same road, the levy needed to deter congestion—all these alternatives are on offer. Some of them are unworkable; and they tend to be mutually destructive. Then there are the proposals for turnpike roads; such proposals get nearer the principle known as charging actual and specific cost, but in a series of crowded and interconnected rabbit warrens they are impossible to apply generally; moreover, the user will argue that he is paying for his right-of-way all over again (except perhaps in certain exceptional cases like great bridges or tunnels) and a further objection is that they would merely result in the "paying" propositions being selected, while the others—the great mass of the mileage—are left to fall on the public purse.

The obscurities of allocating track cost on the railways are not rendered any less because the railways are their own tax gatherers. Railway users as a body—if they are a single and separable body, which I doubt—may be causing this total or that

total of social cost for the provision of track, but we still cannot pin the said cost down to individual passengers or parcels or tons. Even in their domestic costings the railways have the same difficulty, and a railway will usually treat track cost as "indirect," i.e. as something to be regarded as joint and pooled over the whole system (except in special cases or circumstances) and to be recouped by the railway as may seem wisest on practical commercial grounds.

Accountability

We must face facts. Neither the total of society's track cost nor its detail (with minor exceptions) is properly assessable, or even reasonably guessable. And there is no market value for track. Services may be bought and sold, and vehicles may be bought and sold, but not track. I suggest, accordingly, that we give up the search for elaborately "scientific" bases of calculation and recoupment, and content ourselves with the inevitable, namely, that any charges or "tolls" levied by the community on carriers for right-of-way must be more akin to exercises in taxation. Something arbitrary and simple, rather than an economic process of pricing or marketing in all its endless flexibility and subtlety is what we must accept.

This does not mean that the economics of track do not matter. They matter a great deal. In the first place, is the "flat national" basis of current charging for the roads likely to produce the most discriminating use of the roads? If some fairly simple differentials could be devised they might be helpful. The heavy charges for parking in congested areas are examples of what can be done. However, the matter bristles with difficulties in real life. Special licences for city centres? Costly "carnets" for special hours or days or routes? I am not optimistic about getting far with such notions in practice.

But secondly, in the absence of a price test, how do we resist uneconomic demands for new facilities? The pressure is bound to be all the greater when the user has nothing to pay, pro rata and directly. So he may be careless about the congestion he causes today, and about the cost of the expanded facilities he would like to see tomorrow, or about the true cost of his greater speed. Nor is it only a question of money; these things involve transport space as well as money, and space is becoming an increasingly scarce commodity.

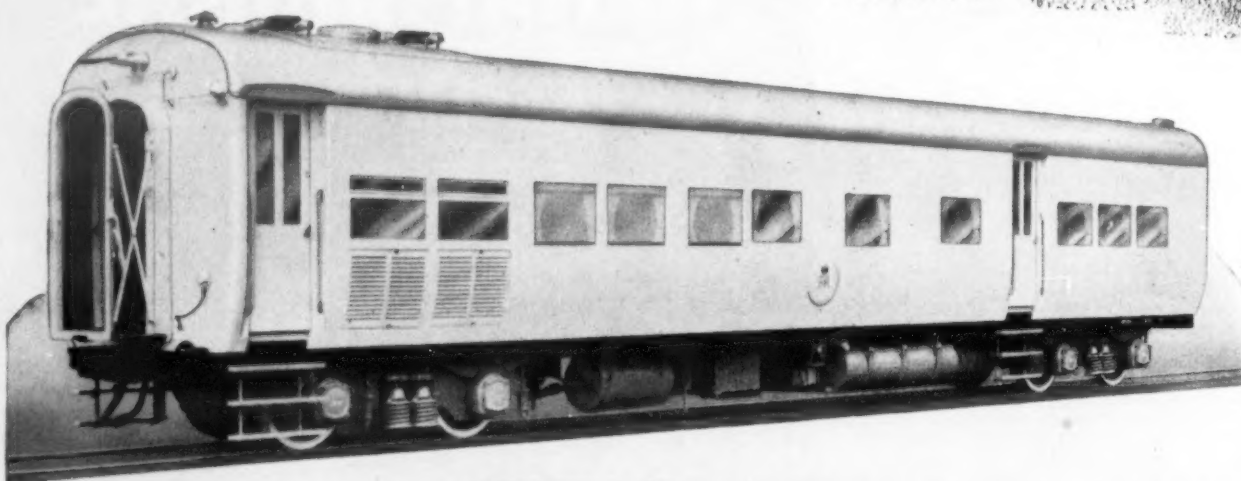
Congestion and Discipline

The cost of congestion and of its allied problem the peak, and the likely development of these problems in the future, is one of the most important and debatable aspects of the economics of track. It was estimated at the Conference on Highway Needs (1957) that 55,000 million vehicle-miles were run on our roads in 1956, and that the difference between "light" traffic conditions and "actual" traffic conditions—i.e. congestion—caused additional costs amounting to at least £170 million a year. This provoked a caustic railwayman to remark: "If it's right, then road transport must be grossly inefficient." However, the railwayman probably forgot that railways have their own difficulties, and costs, in coping with the peak—though no one has had the temerity to attribute a figure to it.

But though train schedules become very "tight" in peak periods, with some unpunctuality and an expensive pattern of operating, the railways do not run trains unless there are paths for them, whereas it is a drawback of road transport that "track"

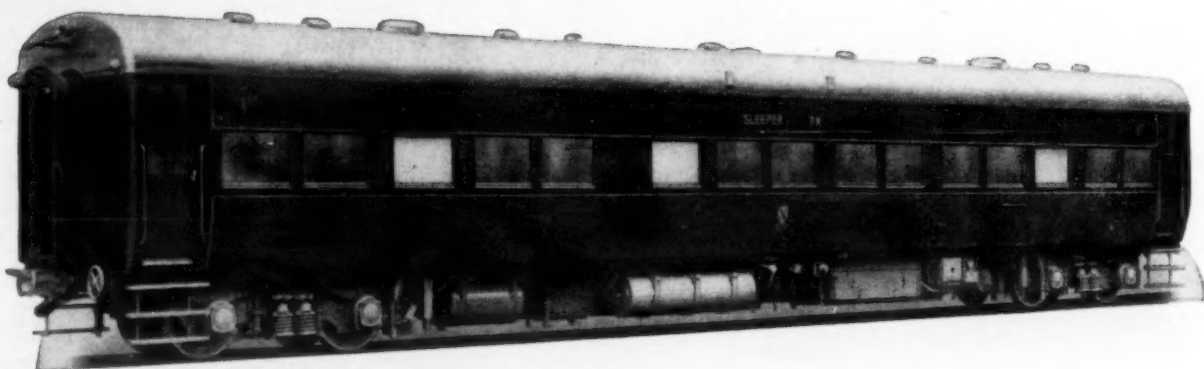
(Continued on page 11)

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and "carrying" cannot be planned together. Vehicles are produced without roads to run on, and once the producers of vehicles have flooded the existing roads with vehicles of all shapes and sizes, the road authorities must undertake their great road works as matters of urgent necessity rather than deliberate choice. The economic justification of a new road is often worked backwards, so to speak, instead of forwards. At considerable cost we reduce ourselves (perhaps temporarily) from a highly congested to a half-congested state, and produce calculations to show that this is profitable!

Can We Spend Our Way Out?

Yet congestion and peak traffic occur only at critical points and times—in the centre of big cities on weekdays, and on holidays or at special events. In the latter case the congestion is constantly "on the move"; we take it with us. In the former case it is a question of "commuters" and "parking." Can we spend our way out of this increasingly wasteful position by constructing vast capital works? Some people think so, where the roads are concerned; the railways are turning more towards the discipline of price, i.e. adjusting the relation between peak and off-peak fares. And if, on the roads, the fault lies not so much with the road systems as with the way the systems are used, we are blaming the wrong party and are in consequence seeking the wrong redress. We need to reform, not the track, but ourselves. In the words of the exasperated London taxi driver: "It's new rules they want, not new roads."

It may not be popular to say so, but it is vital to recognise that congestion and the peak are mainly passenger problems, and freight problems only to a lesser extent. The existing road system is more or less adequate for 18 hours out of the 24, and sometimes for 360 days in the year. The trouble becomes serious when too many people insist on coming by private car to the same place at the same time, especially if they park there as well. The private car, which is increasing in such numbers, occupies per passenger from 10 to 40 times more space (including parking) than the space occupied by the public or "collective" carrier. In general the congestion cost rises faster than the number of vehicles, and each extra vehicle throws upon others the bulk of the additional congestion cost it causes—a fact which makes the cure even more difficult to prescribe.

One is driven reluctantly to the conclusion that an inherent weakness in the economics of road transport is the susceptibility of the roads to "misuse." It is ironic to reflect that the very freedom which has been the chief attraction of road transport may also prove its nemesis. A great deal can be done by organisation and regulation, including the assistance of the techniques, recently developed considerably, known as traffic engineering, but this means that road transport will increasingly lose its freedom. Or it must be disciplined by price, and a price based on penalty rather than on cost, especially in great cities and on highly popular lines of road. Or, if you will, based on the costs which will be caused to society if the congestion is not cured.

"Testing" New Proposals

However, we can be sure that whatever disciplines of fares, regulation and penalty are put into force, it will still be necessary to undertake considerable expansion of the existing facilities. By no means all the congestion is attributable to a wilful "waste" which can be palliated but not cured. There is a sound case for new facilities to speed up many traffics, road and rail and especially road-rail in combination. But how do we settle priorities among the many good schemes which compete for attention? It is increasingly suggested that "rate-of-return" tests should be instituted. Let us calculate the benefit to society from a given work in relation to its cost, and assign it priority according to the rate shown! There are dangers, it seems to me, in this all-too-simple idea.

It invests the figuring with a precision and decisiveness which it cannot possess in this particular kind of calculation. The benefits, if not notional and subjective, are imponderable, and the "rate-of-return" cannot be established or checked back in real life. Either the result will be wishful figuring, or if the figuring is painstakingly honest and ignores everything but "likely and measurable fact," many a first-class scheme will be killed. Of this latter process there are plenty of examples in railway history since 1921. Put another way, if the figuring is visionary it is not the precise test we seek; if it is "proper" figuring it excludes the all-essential vision—a quality not yet subject to scientific determination! I do not say that such figuring as is possible should not be attempted. It will be helpful in focussing thought, but having used the figures we must understand how and when to relegate them to their true place.

Width of Approach

The important thing, when contemplating new works, is to take a sufficiently wide view—often a very wide one—of the results to be achieved. In the complicated and interconnected nature of track it is rarely possible to see the results—the economics—of a given project by merely looking at the project itself. Calculating in terms of parts of projects instead of wholes is a fruitful source of error. For example, when considering the cost of arterial roads we should take into account their effects on the feeder roads and in suburban areas, and other consequential costs. Or when we are calculating the value of removing a bottleneck, we must ask if this removal is going to cause or to increase bottlenecks elsewhere. People are prone to be mesmerised by the profitable proposal, and to forget the unprofitable but unavoidable consequential.

On railways, where track and operations are treated as one, and where the whole system is under single control and discipline, the calculations behind plans to alter the system will normally attempt to allow for all the various factors (rail factors but not road factors) which have to be weighted, whether local or the result of repercussions elsewhere. No railway branch line or feeder line would be opened unless the main line could take the traffic. And there would be no projects for expanding or improving the main line unless the terminals were also made adequate and all other necessary facilities such as junctions, marshalling yards and stabling requirements were worked out. Even so it is not always easy to decide just how "wide" to cast the calculating net.

Extraneous Benefits

But the calculations must sometimes embrace two (or more) "wholes" themselves. The proposed rail connections between London Victoria and London Airport, for example, or across London by the projected tube known as the Victoria Line, could well be held up on account of the high cost of providing the particular tracks. Yet the "operating" would show surpluses. Only if the heavy

track cost has to be recouped entirely from the particular traffics, regardless of benefits which would accrue elsewhere (e.g. to the airlines, to other traffics in congested London, and so forth) do the proposals look too unattractive to elicit the necessary finance. In other words, too narrow or too rigid a basis of approach can kill important developments that are perfectly sound, seen from a wider viewpoint.

Or consider the implications of the current argument about the rural bus. It is argued that this ought to be excused its fuel duty—i.e. have its track cheapened for it—in order to permit its continued service to the public. Is this sound? Perhaps not, but if it is why should not rural train tracks be similarly subsidised; the withdrawal of the train services is much objected to? Yet the distinction is probably justified. The country bus is the cheaper carrier in conditions of thin traffic, and we must take a combined view of both track and carrier. Should we, then, opt in favour of rail track where carrying by rail is cheaper, e.g. on arterial routes with dense traffics?

Combined View of Road and Rail

And should we take account of the possibility—a cheap one—of reducing congestion on the roads by mobilising unused track capacity on the railways? In assessing the economics of providing a new road for "decongestion" purposes—or for any other purposes—what about the effects on the railways and on the plans which the railways have made for their own capital development? And vice-versa! We are engaged on a study in overall social welfare, and any attempt to base assessments unilaterally on the road point of view alone, or on the rail, is bound to make nonsense of any claim to objective appraisal. This is not to argue that a road, or in particular a railway, ought to be automatically protected against a lusty newcomer, or that disused or abandoned transport facilities are necessarily a sign of waste. But a combined view of road and rail should be taken.

Sometimes we must make a still wider approach. Urban development is particularly in point. Should not the planning of urban approaches and conurbation connections be integrated with town planning? An eminent transport economist in the United States has gone even further in suggesting (a) that the cost of providing roads for private cars into the centre of cities is greater than the cost would be of providing public passenger services quite free in these inner areas, and (b) that it would consequently be sound in terms of social economics for the city authorities to prefer to supply free transport. Or again, a great body like the London County Council can generate great transport costs by the way it plans its development, and the commuter often regards his fares and his rent as part of a single calculation. Equally, it might be socially economic for a city authority to provide free finance for an expensive underground railway, whoever operates it, rather than be driven from pillar to post, providing ever-new improvements and extensions to surface roads which are nevertheless—in default of severe disciplining of traffic and of parking—very soon as congested as before.

Length of View

Almost as important as width of approach is length of view. In an island whose space is being diminished every day by the growing urge for faster movement—movement and speed and the utilisation of space going hand in hand—what forms of surface transport are likely to develop most? If the free-moving but undisciplined vehicle will have its fling until traffic density in a given area (or period) reaches a certain point, after that the disciplined but "tied" vehicle will begin to come into its own. There can be, perhaps, railways with concrete tracks and rubber tyres instead of the classic steel-on-steel. The vehicles might then be lighter and cheaper, the track less costly to maintain, the braking distances less long, and above all the interchange between road and rail much less difficult. On the other hand, unless the said vehicles ran in "trains" they would incur the cost of an engine, fuel and crew for each and every vehicle, and moreover would not cope with traffic which arrives in train loads. And unless all other vehicles were to be prohibited on the track in question—which would make it very expensive per unit—speed would not be achieved with safety in the absence of non-human guidance.

What all these alternatives have in common is that to achieve their true purpose, and to bring about the lowest social cost they usually need to be worked in combination. Each must usually "feed" to the other, and its services should be planned in co-ordination with other services, not in isolation. Meantime it may be doubted whether, pound for pound of expenditure, the free and general-purpose road has the same potential throughput as a railway—unless of course it becomes itself a specialised right-of-way. As already indicated, a double-track railway (excluding signalling) probably costs no more than a trunk road at a quarter of a million pounds a mile, over relatively easy terrain. At the other extremes are the examples previously quoted. In passenger traffic it is certainly the "collective" methods which, though they may not appeal, will get the traffic through effectively, at rates as high as 40,000 persons per lane per hour and many thousands per man of crew—and no subsequent parking problems either!

Indispensability of Judgment

It may seem that approaches so broad and long must tend to make it difficult to "prove" the soundness of schemes put forward. This is probably true. But the essentials of any network of communications must be balance and completeness. The strands of the network must indeed communicate with each other. Particular strands may have to be dealt with, or some particular facilities provided, whether or not they "pay" on a narrow approach. In any case, schemes which merely reduce the cost of extravagance should not necessarily be labelled "profit making." Reducing a loss is not the same as making a profit.

Finally there are still the imponderables to take into account. Safety, amenities, distribution of industry and population, availability of social resources (not to mention cash), strategic requirements, housing and so forth. They all add up to something quite significant, though difficult to assess. These are further reasons for deciding that priorities in track provision cannot be left entirely to "rate-of-return" calculations in figures or even to economic formulae. A great deal of "hunch" is inevitably required. By which I mean the judgment, and even the faith, of well-informed and impartial persons who will consider planning in terms of public expediency, practicability and broad social policy—using these words in their best sense. However chancy this may seem, it is already the situation in the world of roads, though railways have to take a narrower view.

It is possible that the sharp distinctions now made in the public mind between road track and

(Continued on page 16)

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NEWS FROM ALL QUARTERS

Continental Buffet Car Prices

The Compagnie Internationale des Wagons-lits announces that the restaurant car now provided on the Barcelona Express between Paris and Limoges will during the winter be replaced by a buffet car. Breakfast will be 3.10 new francs and lunch or dinner 10.35 new francs.

Tour to London Rail Wharves

On October 3 the Railway Correspondence and Travel Society is running a special "motor" train, leaving Waterloo at 2.5 p.m. and proceeding via Wimbledon, Tulse Hill, Deptford Wharf, London Bridge, New Cross and Angerstein Wharf to Cannon Street (arrive 7.2 p.m.). The fare is 13s. 6d. and application for tickets, with s.a.e., should go to Mr. J. Miller, 65 Hollington Crescent, New Malden.

Road Casualties in July

A big increase in traffic on main roads in July, compared with the same month last year, was accompanied by a further sharp rise in road casualties. The killed numbered 588 (an increase of 80), and the seriously injured 7,879 (an increase of 1,374). There were also 24,705 casualties involving slight injury, making a total of 33,172. Traffic on main roads, as estimated by the Road Research Laboratory, was 14 per cent heavier than a year ago.

Douglas Horse Trams

Referring in his annual report to the accounts of the Douglas (Isle of Man) Corporation Transport Department, Mr. A. L. Costain, borough treasurer, states that there was a sharp reduction (£5,521) in the income from the horse trams, which was offset to some extent by a reduction of £1,558 in total expenditure. The income from buses was down by £7,377, but working expenses were £9,906 lower than in the previous year, and the working loss of £1,645 was therefore £2,528 less than in 1958.

Lifting Barriers at Adwick Crossing

Lifting barriers are now in operation at Adwick level crossing, Wath, where arrangements were reviewed some time ago in view of the sale to the National Coal Board of a piece of land on which one set of gates stood. This sale reduced the width of line to be traversed by road vehicles to 56 ft., the roadway being 28 ft. wide. It was felt that if two 28-ft. crossing gates were provided they would only fence the railway partially and that cattle guards would be required. Other alternatives were also examined but none promised so satisfactory a solution. The two lifting barriers are rod-operated by a gate-wheel in the box. The booms and skirts are painted with alternate red and white stripes. A red and white target is displayed on each boom towards approaching road traffic and is made of reflecting material. Each boom also carries two electric lights showing towards approaching road traffic. All lamps are switched on and remain alight when the barriers are more than 10 deg. from the vertical position. Road traffic signals consisting of twin double-sided flashing red lights are provided on each side of the crossing.

Wagon Works Machinery Sold

Following a reduction in British Railways requirements for new wagons, Hurst Nelson and Co., Limited, Motherwell, which is owned by Charles Roberts and Co., Limited, decided to cease production. Its plant has now been acquired by George Cohen Sons and Co., Limited, for resale.

Netherlands Railway Freight Losses

The Netherlands Railways experienced a decrease in freight traffic tonnage of 6.5 per cent and in ton-kilometrage of 8.1 per cent last year as compared with 1957. With particular losses on international coal transport, net profit was only 245,703 guilders (some £24,000) in 1958 as against 3,500,000 guilders (about £330,000) in the previous year.

Native Workers on Rhodesia Railways

With the objective of improving working standards of Africans Rhodesia Railways has nominated seven new categories for native workers. The jobs include road service drivers, ticket clerks, plant operators, drillers, crane drivers, storemen and dining-cars. An ascending scale of wages is provided for by which such workers could rise to the higher grades.

Irish Dock Labour Proposal

A three-man delegation from the Irish trade union movement, which last year studied port productivity in Glasgow and in Bergen, Norway, has recommended that in conjunction with the container traffic problem at Irish ports, a determined effort should be made to negotiate and secure a scheme of port labour decasualisation comparable to that found in Britain.

Co-operation between State Boards

At Blackpool on Thursday last week the T.U.C. carried unanimously a motion calling on the General Council and the Labour Party to examine the need for closer working among the nationalised industries, aimed at an efficient and co-ordinated policy in the interests of public ownership and the nation. The proposer, Mr. S. Greene, general secretary of the National Union of Railwaymen, instanced the conversion from steam to diesel—and electric traction—as an instance of "apparent lack of co-operation." He also suggested that the B.T.C. was not free to develop its valuable sites in London for commercial use.

Disquiet over New Wagons

A request for an official inquiry into railway wagon production has been made in a protest to the Association of British Chambers of Commerce decided upon by Wakefield Chamber of Commerce on September 7. Mr. S. A. A. Knott, a director of Charles Roberts and Co., Limited, Horbury, said that about 4,000 high-capacity wagons had gone straight from a works near Paisley and were standing unused in a siding in Cumberland. The Transport Commission had asked for bigger wagons but did not appear to have consulted either general users or the National Coal Board as to whether they would go in their sidings or travel round the curves in the yards. Because of over-production his company could not see any orders from British Railways for at least five years, said Mr. Knott.

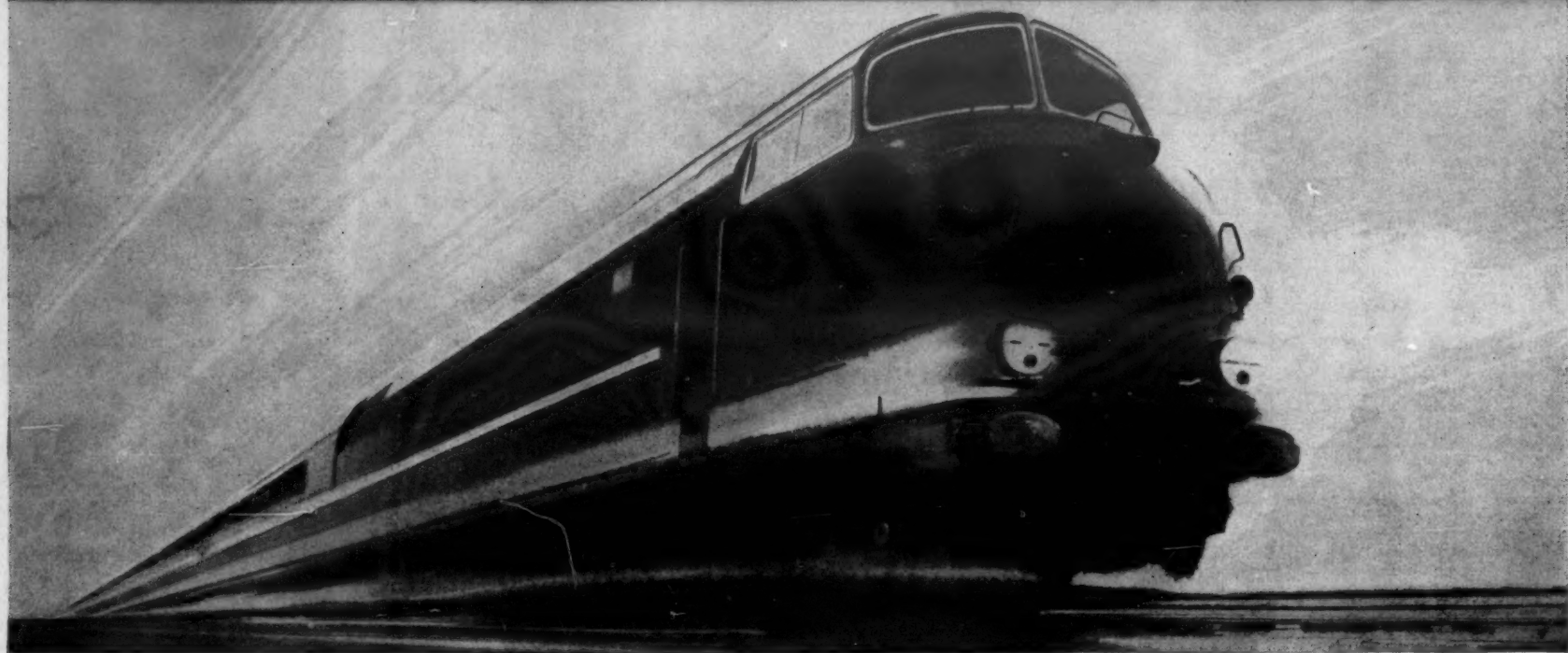
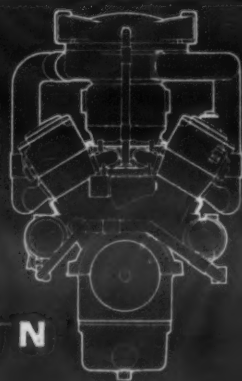
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Bristol Siddeley are now manufacturing under licence a range of diesel engines from 220 to 2,000 bhp rail traction rating developed by the world-famous German firm of Maybach, who have had 35 years' experience in the

manufacture of diesel traction units. Bristol Siddeley Maybach diesel engines are currently being introduced into British Railways Western Region as part of their modernisation programme.

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COMMERCIAL AVIATION

Commonwealth Pooling

T.W.A. TRANSATLANTIC JETS

DISCUSSIONS between the civil aeronautical authorities of the Governments of India and the United Kingdom, in accordance with arrangements made in January of this year, opened on August 19 and concluded on September 9. The inter-governmental Air Services Agreement, 1951, provides for these periodical reviews, of which the most recent was in New Delhi during January, 1959. The latest talks, which took place against the background that the airlines will be meeting again during November to consider possible pooling arrangements, reviewed in full and frank discussion the whole range of the relationship between the two Governments in the field of civil air transport. A further inter-governmental meeting will take place in New Delhi in January, 1960. In the meantime the arrangements made last January will continue.

Addressing the Canadian Chamber of Commerce in Great Britain last week, the President of Trans-Canada Air Lines also referred to pooling. Already there had been talk of the equivalent of European Air Union among the international airlines of the Commonwealth. Personally, he doubted that anything along these lines could be achieved either quickly or easily. On the other hand, conversations had taken place between Commonwealth member airlines with a view to, realizing at least some of the economies which were to be had from closer collaboration. Talks of this kind had been held between B.O.A.C. and T.C.A. with respect to the North Atlantic route, and it seemed safe to say that, subject to the working out of a mutually satisfactory agreement between the two undertakings, one variation or another of pooling would be implemented. If it did nothing else, this should avoid the obvious extravagance of the operation by both airlines of capacity greatly in excess of that required.

West Country Airports

Exeter Airport, Limited, which operates the airport, has been taken over by Harper Engineering and Electronics, Limited, which has also acquired all the shares of Plymouth Airport, Limited, which leases Roborough Airport from Plymouth Corporation.

More B.O.A.C. Services to Chicago

Starting on October 25 the British Overseas Airways Corporation will operate an increased winter schedule between London and Chicago. From that date there will be four flights weekly by Bristol Britannias. Two flights will operate through Shannon and two through Prestwick. Last winter there were three services weekly on the route.

Stamp Marks I.A.T.A. Meeting

The first stamp to be issued to commemorate the annual assembly of the world's airlines will be placed on sale by the Japanese Post Office on October 12. It marks the opening day of the 15th annual general meeting of the International Air Transport Association in Tokyo. The principal design feature of the stamp is the Japanese red-crested crane. The stamp's face value is 10 yen.

Flying Tiger Traffic in July

July air freight revenues of the Flying Tiger Line, showing a reversal from previous years' experience, set a new record for the airline, totalling \$1,376,972, according to Mr. John I. Higgins, vice-president. Normally one of the slackest months of the year, July traffic was 58.9 per cent above the same month last year, when revenues of \$866,301 were reported. The July revenue also surpassed the previous record of \$1,350,848, set in December, 1958. For the first seven months of the year, traffic showed a gain of 38.9 per cent over the same period last year.

Engineering School Move

Negotiations are in progress between Air Service Training, Limited, and Airwork Services, Limited, for the transfer of the School of Aeronautical Engineering from Hamble, near Southampton, to one of Airwork's training bases—probably Perth. This has been planned so that the engineering school established by A.S.T. can continue to function after next May, when the new College of Air Training, which is to cater only for pilots, comes into being at Hamble. Approximately 80 engineering students from overseas, who are under training at Hamble, will be given the opportunity of finishing their courses and the normal flow of intakes is expected to continue. The re-formed engineering school will be called Airwork Services Training, thus preserving the familiar initials of its predecessor.

Priority for Ceylon Airports

The Government of Ceylon has decided to give priority for the construction of three more internal airports at Tissamaharama in the south of the island, Batticaloa on the east coast and Anuradhapura in Central Ceylon. The airstrip at Trincomalee will also be improved. Work will begin in the next financial year and is expected to cost about Rs. 1,600,000. The decision to construct these was taken by the Minister of Transport, Mr. Maitripala Senanayake, in view of the rapidly increasing internal air traffic. Anuradhapura will be Ceylon's second centre for its network of internal air services. From here flights will be operated to Jaffna, Tissamaharama and Minneriya. Trincomalee and Batticaloa will have connections with direct flights from Colombo to Anuradhapura and Jaffna.

Date for T.W.A. Transatlantic Jets

Trans World Airlines will begin nonstop transatlantic jet services between New York and London on November 23, using Boeing 707 Intercontinental jet liners, it was announced last week. Initially there will be three T.W.A. jet flights weekly in each direction between London and New York with the first flight from London departing on November 24 and thereafter on Saturday, Tuesday and Thursday. The airline will reduce flying time from London to New York to 7 hr. 30 min. and flying time from New York to London will be 6 hr. 25 min. The aircraft will accommodate a total of 134 passengers: 32 first class and 102 economy class. The 707 London-bound aircraft will also operate a service between London and Frankfurt with a flying time of 1 hr. 10 min. A T.W.A. transatlantic jet service from New York to Paris and Rome is scheduled to begin on December 3.

B.R.S. TECHNICAL SERVICES



Mr. GEORGE F. SINCLAIR, C.B.E.,
A.M.I.Mech.E., M.I.E.E., M.Inst.T.

When the board of management of British Road Services is reconstituted on October 1, following the translation of Major-General G. N. Russell to the British Transport Commission, Mr. George F. Sinclair will become deputy to Mr. T. G. Gibb in his appointments as chairman of the board of management and as general manager. He will be responsible for technical services and will thus continue in the special assignments laid upon him when, in December, 1950, he was appointed a whole-time member of the then Road Haulage Executive. Commencing his theoretical engineering training at the Robert Gordon Technical College, Aberdeen, Mr. Sinclair obtained his actual engineering training with Dick, Kerr and Co., Limited. After three years in France with the Royal Air Force during the war of 1914-18, he returned to Dick, Kerr, later becoming technical assistant to the English Electric Co., Limited. In 1926 he was appointed general manager of the Kilmarnock Engineering Co., Limited, and, in 1930, assistant rolling stock engineer of the London County Council Tramways, being appointed rolling stock engineer in December, 1931. When the London Passenger Transport Board was formed in 1933 he was appointed rolling stock engineer (trams and trolleybuses), and was intimately concerned in that capacity, and as chief engineer (trams and trolleybuses) from July, 1939, with the conversion of tramways to trolleybus operation, and played an important part in the design of new trolleybuses. Mr. Sinclair was made deputy general manager (road services) in October, 1945, after a period from 1940 to 1944 during which time his services were loaned to the U.K. Commercial Corporation for special duties in the Middle East. In December, 1947, he was appointed chief technical planning and supplies officer, London Transport Executive. In 1948-49 he reported, with a small party, on tram and bus services in the Sydney and Newcastle areas in Australia. He is a former member of council of the Institute of Transport, and former chairman of its Metropolitan section. He is also a past chairman of the Public Transport Association.

BUILDING AIRCRAFT

Manufacturers and Policy

S.B.A.C. PROPOSALS

AFTER considering the difficulties confronting the aviation industry, largely as the result of reduction in military aircraft orders, the council of the Society of British Aircraft Constructors has decided to press for the implementation of six measures as specific Government policy. They relate particularly to the policy regarding transport aircraft.

The steps urged on the Government are to: Harmonise the transport aircraft requirements of the Services, the airlines, and other potential markets at home, in the Commonwealth, and elsewhere; expand the volume of the home market; make full use of the State airlines and the Services for operational development and proving of new aircraft, engines, and equipment; facilitate sales abroad; expedite a specific programme of technical advance, and ensure a continued leading place for British aviation through defined means of Government financial support.

Improved measures which the S.B.A.C. council has in mind to facilitate overseas sales are understood to include increased credit facilities for purchasers and some form of underwriting by the Government of types which have an export potential.

Focus of Authority

In the S.B.A.C. council's opinion, implementation of the measures sought will require, within the structure of Government administration, a focus of authority empowered to formulate policies and programmes and to secure their execution. The society has refrained, at this stage, from formulating any definite ideas as to the form which this focus of authority ought to take. It might well be that if departmental terms of reference were revised no radical change of structure would be needed. The aim is to have one authority with powers to ensure appropriate action being taken, instead of, as at present, responsibility being divided between several Government departments.

The council states: "Government policy presumes a progressive readiness in private sources of capital to invest at risk in a market where the magnitude of the risk is progressively growing for technological reasons; while the character of the risk is progressively being determined by political and strategic rather than by commercial considerations. Such a policy cannot succeed."

Wider Credits Wanted

Announcement of the council's programme came shortly after a review by Sir Aubrey Burke, president of the S.B.A.C., of the results of last week's Farnborough show. To promote export business the industry wanted wider credit facilities to equal those available to the United States industry, and it would like the Government to underwrite aircraft with export potential, giving a starting order so that production could get under way quickly. This had been done in the case of the Avro 748 and the Handley Page Dart Herald turboprop air liners.

At present the British industry could obtain seven years' credit facilities only for sales of certain large aircraft and provided it could prove that similar facilities were available to purchasers of comparable American aircraft. The Government should back, more strongly and more quickly, aircraft which were obviously potential winners in the export sphere. He thought that more civil aircraft orders would come, because with military contracts in the United States being reduced the American industry would find more difficulty in competing with Britain in civil markets.

As to a supersonic air liner Sir Aubrey Burke said that somebody would make it one day; nobody could stop it. The society's attitude towards such a project was that all the preparatory work must be done but no supersonic air liner activity must be at the expense of subsonic aircraft and the great amount of business they could bring in. There was no doubt that if the industry got down to it it could build a supersonic transport, but he did not believe that even the four biggest aviation groups in Britain would be prepared to take on such a venture entirely from their own capital, because they could not expect to see a return.

BOOK NOTICES

Trade and Technical

GO CONTINENTAL—By CAR. By Walter Hutton. (London: For The Autocar by Iliffe and Sons, Limited, Dorset House, Stamford Street, S.E.1. Price 17s. 6d. net.) Touring by road on the Continent has become a popular practice since the war and this book will help both novice and old hand to avoid the overcrowded well-worn routes and select those offering the greatest opportunity of enjoyment. Written from a background of 30 years' experience of Continental motoring, the book is a mine of information on road conditions and places of interest and entertainment that could easily be missed by the casual tourist; suggested routes are indicated by specially drawn maps.

THE VINTAGE MOTOR CAR POCKETBOOK. Compiled by Cecil Clutton, Paul Bird and Anthony Harding. (London: B. T. Batsford, Limited, 4 Fitzhardinge Street, Portman Square, W.1. Price 8s. 6d. net.) A most intriguing little book (which really does fit into the pocket) into which illustrations and specifications of no fewer than 165 makes of cars that were produced in the vintage era have been liberally packed. All the important makes, and many of the less-important, of the 1920s are dealt with, in many instances with expert comment on features which gave to vehicles of the day their individuality and brought to their builders commercial success or oblivion.

MOBILE RADIO TELEPHONES. By H. N. Gant, A.M.Brit.I.R.E. (London: Chapman and Hall, Limited, 37 Essex Street, W.C.2. Price 21s. net.) Growing use of mobile radiotelephony, occasionally of a type or in conditions affording little or no commercial advantage, provides a situation in which this book serves a valuable purpose. Written particularly for those dealing with and organising transport services, with the authority of a period of 10 years spent by Mr. Gant in the design and development of this type of equipment, the book explains for the layman the meaning of terms and specifications used in descriptive literature and shows how these affect performance, thus enabling users and potential users to assess for themselves the value of radiotelephony to their own circumstance and reap the maximum benefit from its use.

ROAD VEHICLE INDUSTRY

Dunlop Steel-Cord Tyre

NOW in experimental production by Dunlop Rubber Company is the Dunlop RB6 tyre. Of all-steel construction, it is made by a new process which enables tyres to be produced within closer tolerances than have been possible before. Its characteristics are said to be specially attractive to commercial vehicle operators. The RB6 has a single-ply casing in which the steel cords run at an angle of 90 deg. to the rim. Between the casing and the tread are bracing strips of steel fabric and steel is used for all the other components normally made from textiles. The tread pattern is specially designed to take fullest advantage of the casing characteristics. Manufacture is carried out on an entirely new type of tyre-building

ment stage and, although the results so far obtained are promising, there are still problems to be solved before the tyres can be included in the current price list.

100-ton Tractor-Trailer for Spain

ON their way to Spain are a Scammell Constructor heavy-duty tractor and a Crane 100-ton low-bed trailer ordered by Fuerzas Electricas del Noroeste SA, which operates a number of power stations and distributes electrical power in Galicia, North West Spain. The 32-wheeled trailer is hydraulically suspended, employing two identical bogies supporting a double-creaned frame fore and



Final trials of a Scammell Constructor tractor and Crane 100-ton trailer before shipment of the outfit to Spain

machine specially developed by Dunlop. The machine is protected by patent applications and enables casings to be constructed within tolerances narrower than in any practicable method of tyre manufacture.

Among the characteristics claimed for the new tyre are longer tread life, greater comfort, higher load capacity, lower weight, cooler running and improved grip on wet or slippery surfaces. Extensive testing already carried out totals over six million miles and this total is currently being increased at the rate of half a million miles a week. In the immediate future, priority is being given to pilot production in the 9.00-20 size. Other sizes are being developed, but the company emphasises that the RB6 tyre is not yet out of the develop-

ment stage and, although the results so far obtained are promising, there are still problems to be solved before the tyres can be included in the current price list. aft. Each bogie has 16 wheels arranged in pairs, on eight pivoting axles. Steering, which operates on all wheels, is automatic by means of mechanical linkage, or it can be controlled hydraulically. A generator set is incorporated to provide power for the various ancillary operations. The rear bogie is equipped with a cat-walk for the rear steersman, and a built-in loud speaker system is supplied for communication between him and the tractor driver. The six-wheel-drive tractor is powered by a 185-b.h.p. Rolls-Royce diesel engine and has two gearboxes giving 12 forward speeds, power-assisted steering and air-pressure brakes operating on all wheels of the tractor and trailer. There is a Scammell 15-ton winch housed under the steel ballast body. The largest single load the vehicle

will lift, on an 80-mile mountain-road haul from the port of La Coruna to Belesar, site of a new hydro-electric station, will be a generator transformer supplied by the British Thomson-Houston Export Co., Limited (now incorporated in A.E.I. Export, Limited), weighing in the region of 100 tons. Other heavy loads will be 88,000-kVA B.T.H. generators and 104,800-b.h.p. Boving water turbines.

Mark II Bonallack Container

THE blown-discharge bulk container introduced by Bonallack and Sons, Limited, last year (MODERN TRANSPORT, September 20, 1958) as a detachable container for fitting inside the body of a slightly modified tipper vehicle, is now available in an alternative form. The new Mark II version comprises a standard tipper chassis and cab, equipped with a detachable tipping or a platform body (or both) which can be removed completely from the chassis and replaced by the container. The entire conversion takes as little as eight min. when suitable lifting gear is employed. The principal advantage of the later version is that it dispenses with the surplus weight (8 cwt.) of the body when the vehicle is being used in bulk-container role. In other respects, it is very similar to the Mk. I, the same system of male and female truncated pyramids, locked by quick release pins, being used to secure the body in use to the chassis sub-frame and a Wellworthy-Ricardo blower providing power for pressure discharge. Originally developed in collaboration with the Ketton Portland Cement Company, which now has 13 of them in use, the Bonallack container vehicle has since been used successfully with lime, sugar, flour and a variety of other dry powders and granulates. A picture appears above.

Perkins School for Yugoslavia

A MOBILE school belonging to Perkins Engines, Limited, has been loaned for three years to Yugoslavia to give on-the-spot instruction to maintenance personnel, farmers and other users of Perkins-engined equipment. There will be about 25,000 Perkins engines operating in Yugoslavia by the end of the year, mainly in tractors and



Mark II Bonallack blown discharge bulk container alongside interchangeable lorry body, in this case on Dodge 7-ton chassis of Ketton Portland Cement Company

combine harvesters. A mobile school was loaned to Yugoslavia in 1956 and returned to Britain this year, while similar schools have toured every continent giving instruction on Perkins engines and have also often acted as unofficial ambassadors for British industry.

New Engine from New Zealand

ON his way from Papakura, New Zealand, is Mr. Digby Morton with the prototype of a diesel engine of new design which a Scottish engineering firm intends to develop for the British market. The engine, which in prototype form has an output of about 16 b.h.p., is an opposed-piston design which, it is claimed, completely disposes of all nuts, bolts, screws, high-pressure gaskets and fuel and oil pipes. The engine is held together by means of "toggle clamps" and can be dismantled in five minutes or so without the use of tools. Mr. Morton is accompanied by his two sons.

Bedford with 18-ft. Body

EXTENSION of its 7-ton range by the introduction of a 168-in. wheelbase forward-control chassis designed to take an 18-ft. long body is announced this week by Vauxhall Motors, Limited. The wheelbase is longer by a foot than the current l.w.b. 7-tonner and the frame length

Co-operating in the Southern Region Electrification



BARNES CONTROL PANEL

BARNES and CHISLEHURST are O.C.S. installations, BECKENHAM and SHORTLANDS are of the push-button type.

ALL THESE INSTALLATIONS WERE SUCCESSFULLY COMPLETED BY AGREED DATES.

WESTINGHOUSE

SIGNALLING

Extensive signalling installations recently brought into service include Barnes on the Waterloo-Richmond Line, and Beckenham Junction, Shortlands and Chislehurst on the Herne Hill to Swanley section of the Kent Coast Lines.



BECKENHAM JUNCTION CONTROL PANEL

AND

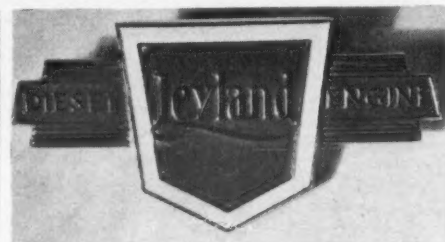
WESTINGHOUSE

BRAKES



ON THE NEW MULTIPLE STOCK for the Kent Coast Electrification. Fifty-three of these 4-car express electric units mostly completed at Eastleigh Works are fitted with Westinghouse Electro-Pneumatic Brakes of the latest improved type.

Brakes designed and manufactured in England and Signals designed, manufactured in England and installed by:—
WESTINGHOUSE BRAKE AND SIGNAL CO. LTD., 82 York Way, King's Cross, London, N.1



Obtainable free from Leyland Motors by users is this new badge for fitting to Leyland-powered vehicles and equipment of other make

behind the cab is 2 ft. greater. In other respects specifications are similar, except that the new chassis is not available with fitch plates. Weight exceeds that of the 156-in. wheelbase chassis or chassis-cab by about 70 lb. and of the complete dropside lorry by 250 lb. Optional power units are the Bedford 300 cu. in. petrol or diesel engines or the Leyland O350 diesel. Prices range from £948 for petrol chassis only, £1,273 for Bedford-diesel dropside lorry complete to £1,573 for Leyland-diesel lorry and are claimed to be the lowest in U.K. for diesel-engined vehicles in this class.

Shell-Mex and B.P. Anti-Freeze

TWO new brands of anti-freeze being marketed by Shell-Mex and B.P., Limited, in the 1959-1960 season incorporate new and highly effective additives to prevent corrosion and to increase the resistance of engine coolants to foaming. The new products are Shell Anti-Freeze and B.P. Anti-Frost, which replace Snowflake Anti-Freeze, now withdrawn from the market. Both are based on a formula developed by the Chemical Research Laboratory of the Directorate of Scientific and Industrial Research, and they also comply with the provisional British Standard Specification CY(FHC)5100, type B, the final form of which is to be issued shortly. Shell and B.P. anti-freeze products are flexible in that they are equally suitable for petrol and diesel engines. They are available in containers of 1 pt. upwards to and including 40-gal. drums.

Multi-Fuel Rootes Diesel

THE Rootes three-cylinder opposed-piston two-stroke diesel is to be made available as a multi-fuel engine, with ability to operate on diesel oil, regular and military petrol, paraffin and jet fuels JP 3, 4 and 5. Primarily for military applications for installation in vehicles not necessarily of Rootes Group manufacture, the engine in its multi-fuel form will also be of considerable interest to civilian operators in territories where certain fuels are scarce. The few modifications necessary to provide multi-fuel characteristics in the Rootes engine concern primarily the fuel-injection equipment; they include provision for boosting the fuel-delivery pressure to the injection pump, thereby overcoming the possibility of vapour lock with volatile fuels. This is achieved by increasing the feed-pump delivery pressure and by fitting an electrically driven pump in the tank which supplies fuel under pressure to the feed pump. Also, to lubricate the pump camshaft and tappets, a supply of lubricating oil is fed through a metering device, into the pump cambox. This oil is then drained back into the engine sump. A further supply is also pumped under pressure to an annular groove around the pump plungers to form a hydraulic seal. When the engine is operated on fuels other than diesel oil, its thermal efficiency remains almost unchanged due to the advantageous two-stroke design characteristics. Although it is inevitable that there is a drop in power when running on petrol as against oil, due to the lower specific gravity of the former, this can be overcome by adjusting the injection pump; a rapid adjustment giving two settings, one for diesel and one for petrol, is provided. Tests conducted with the Rootes engine have shown that of all multi-fuel units it is the most successful.

DOCKSIDE CARGO CRANE

Stothert and Pitt Makes Major Design Advance

A NEW type of dockside crane designed and developed by Stothert and Pitt, Limited, Newark Works, Bath, during a period of two years is probably destined to be copied as extensively as has been the crank level luffing crane introduced by the same company some 35 years ago. The new machine represents as great an advance as did its successful and extremely efficient predecessor; in fact it is probably the first major advance in the general design of dockside cranes since that event. A principal feature of the crane, which gives it a clean and pleasing appearance, is its construction of welded plate into units of a size convenient for bolting together on site. The method of construction used also provides about a 30 per cent saving in weight for a given duty, lower price when produced in quantity and lower calls on maintenance since the exposed area requiring painting is about half that of the normal

the load in the "off" position and in emergency. Control is obtained entirely on light current contactors and there are no contactors in the main d.c. circuit. Whatever the load no heavy current surges are thrown on the supply line. A d.c. solenoid-controlled brake is fitted to the outside of the totally enclosed hoist gearbox to which the electric motor is flange mounted. The hoist barrel is mounted on a dead shaft which is located by a ball and socket joint at the gearbox end and by a bracket at the opposite end. The drive is transmitted to it by means of an involute splined coupling capable of tolerating misalignment. This obviates the necessity of accurate alignment of the hoist gearbox and the bracket.

Slewing

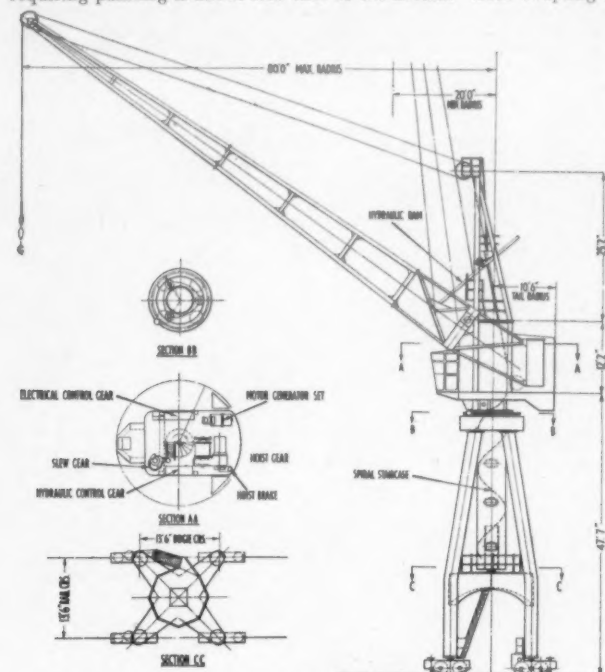
The slew motor drives the slew pinion through a fluid coupling and a train of spur gearing. This protects the motor and gear against overload and shock loads and ensures a smooth and even drive. The brake is under the permanent control of a thruster but its action can be intensified by a pedal-operated hydraulic gear with a limiting device to prevent excessive inertia loading. This gives the driver a sensitive but limited control for arresting the slewing action and at the same time provides an automatic brake which would stop and hold the revolving part of the crane without the driver's intervention. The slew pinion engages with a segmental spur ring bolted to the top of the truck. The ring is integral with the slewing roller path to ensure correct tooth engagement in all positions.

The four two-wheeled travelling bogies are fitted with swivelling as well as rocking gear to minimise cross-racking and enable the crane to negotiate curves. Two of the bogies are fitted with travel gear in which the motor drives through a fluid coupling and worm and spur gear to both wheels. This ensures a smooth and even drive and gives protection against overload and shock. Automatic solenoid-controlled brakes are fitted to the powered bogies and a hand-operated safety locking device is fitted to the other bogies. All four of the travelling bogies are fitted with equalising jacks, the screws of which are protected.

All machinery, except for the travel gear and the luffing ram, is situated inside the machinery house. It is in self-contained units with flange-mounted electric motors. Gears are totally enclosed and oil-bath lubricated. Ample space is provided for access and maintenance. The units are designed so that alternative drive means may be provided with little alteration to design or construction; thus a rectifier and d.c. motor may be fitted as an alternative to a Ward-Leonard set and so may the various a.c. drive systems either with or without change-speed gears for the hoist.

Plastics Machinery House

The machinery house is constructed of translucent resin-bonded glass fibre which, without win-



General arrangement drawing of the new Stothert and Pitt 5-ton cargo crane

type of crane. In addition there are a number of other design advances that make for smoother, safer and more-simplified control.

The Stothert and Pitt machine is not the first to employ welded-plate construction. The Germans developed cranes of this type soon after the last war but these have not found general acceptance outside Europe as the material used was of light gauge and the cranes did not comply with British Standards. The new crane conforms generally to British Standard 2452:1954 and in some respects the requirements of that specification are exceeded. The first machine, which has taken two years to design and develop and is for service with the Port of London Authority, is for 5-ton lift at 80-ft. radius and 6-ton lift at 70-ft. radius. To change from one condition to the other it is necessary only to change the jib and apex and alter the hoist motor speed.

Tubular Construction

Members generally are of tubular section in order to obtain maximum weight-strength and weight-stiffness ratios. A long pintle tube attached to the underside of the superstructure is fitted at the upper end with three adjustable rollers which rotate inside a segmental roller path bolted to the truck top. The outside of the ring has spur teeth for engagement with the slewing pinion. The lower end of the pintle tube is supported by an oil-immersed roller thrust and journal bearing.

The jib is straight and balanced in all positions and has only one pulley spindle at the head, thus eliminating unnecessary bending stresses. It is supported by means of a cross axle integral with the jib which turns in split trunnion bearings bolted to the superstructure. The balance weights are triangular in order to obtain the maximum moment with the minimum weight and tail radius. Top-luff level luffing is used but rope angles are arranged to eliminate the need for a back pulley at the superstructure apex. The jib consists of three sections bolted together, each being a tubular welded fabrication employing the minimum number of members. It has been designed so that all four main members are subject to the same maximum load and stress.

Crane Operations

Luffing is by means of a single centrally placed hydraulic ram of original design which ensures that, although the driver controls the variable luffing speed, there is always smooth acceleration and deceleration of the jib in all positions whatever the driver should do. A specially developed simplified Ward-Leonard set drives the hoist winch through double-helical and spur gearing. It has an exciter, energised by the current in the armature loop circuit, which simultaneously controls the winch motor field and the generator field. The system provides variable hoisting and lowering speeds under the control of the driver, through which light loads can be hoisted and lowered at three times the speed of the maximum load and intermediate loads at corresponding speeds, without the use of discriminating relays. Automatically controlled lowering by regenerative braking is employed on all lowering notches. An electromagnetic brake is fitted, but is used only to hold



Clean and pleasing appearance is only the outward and visible sign of the major advance in design achieved in the new crane, here seen contrasted with a machine of earlier design

dows, gives soft uniform lighting within. A wall crane is provided inside the house capable of lifting any of the machinery units. Jackknife doors at the back of the house enable any of the units inside to be swung out on the crane. All steel fittings of the house which are exposed to the weather are galvanised.

The driver's cabin is constructed of resin-bonded glass fibre and galvanised steel. Rubber-glazed safety glass is used throughout and a window is provided in the floor and another in the roof. An adjustable seat is provided for the driver who operates the crane by means of joystick controls.

Access to the driver's cabin is by a stepladder to the pintle platform level, through a sliding door into the pintle tube, up a spiral staircase inside the tube to the machinery house and thence

(Continued on page 16)



IN...

...for maintenance. And an I.C.I. Degreasing Plant saves a lot of trouble and labour. It quickly removes all accumulated oil, grease and road dirt from mechanical parts and leaves them clean, dry and ready for inspection. Road and rail transport operators find that trichloroethylene degreasing gives easier handling and inspection.



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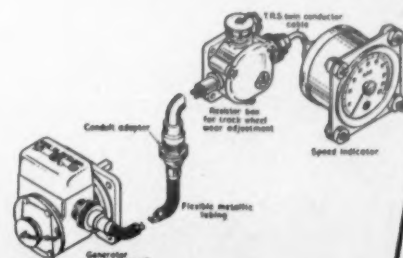
For further information please consult

DP. 261

IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.1.

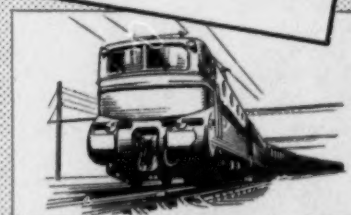
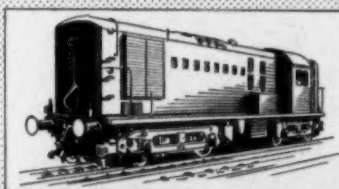
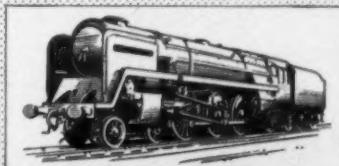
Quicker by rail—and safer with AEI SPEED INDICATORS

For correct and continuous indication of locomotive speed, essential for safety and precise schedules, many railways have come to depend on AEI equipment. Pioneers in the design and manufacture of Railway Electric Speed Indication Equipment, AEI have more than 20 years' experience on British and Overseas railways.



Leading Features

- High accuracy, unaffected by changes of temperature
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TRACTION DIVISION

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Trafford Park,
Manchester, 17

Rugby,
Warwickshire

Dockside Cargo Crane

(Continued from page 15)

through a door into the cabin. Rung ladders give access through a trapdoor in the roof of the machinery house to the luffing ram and the apex pulley. No jib ladder is provided as access is obtained by lowering the jib head to the ground.

Maintenance

Ball or roller bearings, fitted with seals and packed with an ample supply of non-coagulating grease, are used for all high- and medium-speed bearings. These should never need regreasing but nipples are fitted to enable greasing to be done,



A close-up shot of the control cabin

say once a year, if this is desired, the seals being arranged so that excessive internal pressure causes excess grease to escape. All other bearings, except for lever gear within the house, are lined with graphite-impregnated Ferobestos. Grease nipples are fitted and the bearings are greased on assembly. They should be greased after the first month of use

and after that about once a year. These bearings only require grease as a means of preventing the shaft from rusting.

Leading Particulars

Some leading particulars of the two versions of the crane are given in the following table.

	5-ton model	5-ton model
Radius	20 ft. min.	18 ft. min.
Jib centres	80 ft. max.	70 ft. max.
Tailand clearance radius	10 ft. 6 in.	10 ft. 6 in.
Rail centres	13 ft. 6 in.	13 ft. 6 in.
Height of cab floor	47 ft. 10 in.	47 ft. 10 in.
Height of jib foot axle	56 ft. 9 in.	56 ft. 9 in.
Height of apex pulley	84 ft. 11 in.	82 ft. 3 in.
Total weight	82 tons + 12 tons concrete ballast at site	
(Note.—Ballast is not required for 15-ft. gauge crane track or over.)		
Maximum wheel load	22 tons	22 tons
Height of C.G. above rails	About 28 ft.	About 32 ft.
Hoist speed	0 to 5 tons	0 to 5 tons
(i) with 60-h.p. motor	425 to 144 ft./min.	425 to 130 ft./min.
(ii) with 75-h.p. motor	425 to 180 ft./min.	425 to 150 ft./min.
Slew speed	1½ r.p.m.	1½ r.p.m.
Luff gear speed	0 to 160 ft./min.	0 to 160 ft./min.
Travel speed	80 ft./min.	50 ft./min.

Rail centres may be either increased or decreased if required, but the weight and maximum wheel load quoted are based on 13 ft. 6 in. rail centres; they would be increased for a narrower rail gauge and decreased for a wider one by adjusting the ballast accordingly. If the rail centres were increased to 20 ft. or more the number of legs could be reduced from four to three and the number of rail wheels reduced from eight to six.

Sub-Contractors

The suppliers and sub-contractors for the new Stothert and Pitt DD2 dockside crane are as follows:

Hydraulic equipment	Keelavite Hydraulics, Limited
Hoist motor and motor generator set for hoist	Mawdsley's, Limited
Electrical control equipment	Allen West and Co., Limited
Motors for luff, slew and travel	Lancashire Dynamo and Crypto, Limited
Brakes for hoist, slew and travel	Elliston, Evans and Jackson, Limited
Machinery house and driver's cabin	Longwell Green Coach Works, Limited
Fluid couplings for slew and travel	Fluidrive Engineering Co., Limited
Ball and roller bearings	Skefko Ball Bearing Co., Limited
Taper roller bearings	British Timken, Limited
Ropes	British Ropes, Limited
Ferobestos bearings	J. W. Roberts, Limited
Spheroidal graphite iron castings	John Williams and Sons (Cardiff), Limited

David Brown Construction Equipment, Limited, has moved its home and export sales departments from Hanworth Park, Feltham, to the main David Brown tractor factory at Meltham Mills, near Huddersfield. The northern parts and service depot of the company has been transferred from Moll Springs, Nethererton, to the principal David Brown parts and service factory, Scarr Bottom, near Huddersfield. The present parts and service depot is being retained at Hanworth Park, Feltham, Middlesex, to serve customers in the southern area of the United Kingdom.

Transport Economics

(Continued from page 11)

rail track are partly historical, and partly a question of "constitution." If railways became a Government Department—not that I am advocating this—it would be more obvious that all track, whether road or rail, is one grand community of interest. It was not always so, but it is so today. For either road or rail the track cost is already regarded as "common" over the whole country, and is recovered on such bases as are found expedient and practicable. The process having come thus far, one wonders if the road track cost and the rail track cost might not themselves be treated in common. Do they not serve the same common end, and could either exist separately? When the interchangeable road-rail vehicle comes, what then? Also, we are told to expect that the road tracks will often be built over the rail tracks in future. Obviously the two will have to be regarded as partners in one and the same business.

Meantime, when testing the economics of capital expenditure we apply the "social" criteria to road projects and the "banker" criteria to railways, because the latter are statutorily bound to a commercial measurement of profit and loss, and because the normal play of "financial" forces cannot, in the nature of things, be the guiding principle for investment in roads. Meantime, also, road and rail still have their differing bases and structure of track cost, with resulting differences in the track burdens of road carriers and rail carriers. As we have seen, the heavy road carriers pay less for their track than rail carriers, yet there can be no evidence to show whether this in fact reflects the social cost of road track per unit of throughput or whether or not society makes a "profit" out of road payments in total. The road carriers also pay on a much more convenient basis—no go, no pay. It is these differences between road and rail in the weight and form of their track cost, and the undesirable dichotomy and propaganda warfare generally, which are giving rise once more to the old suggestion that perhaps we might treat the track cost of railways more like the track cost of roads. In other words, the railways would pay a toll, and provision of the track would be defrayed out of public expenditure.

Difficulties

But there are difficulties. Railway track and railway operating are much more closely meshed in together than roads and road operating, and railway operators must control their own track. And could we leave the railways with some part of their track cost, rather like county councils, to put some brake on extravagant demands? But the chief difficulty, I think, would be to decide the relativity of the "tolls" to be paid by railways and roads. The railway track is in some ways a superior instrument, especially in its guiding rail and its signalling; and also, the railways have the exclusive use of their track, a circumstance conducive to cheaper operating. Against this, the track is highly specialised, a fact which can involve serious drawbacks, such as the need to "transfer" to road for much of the door-to-door freight. Further, the nature of the track makes for inflexible operating conditions which are very troublesome and costly in times of emergency, obstruction or quick changes of circumstance.

Finally, the specialised and highly organised track and signalling makes it possible to move by railway vast peaks of traffic which could hardly go by the non-specialised road, and this very fact means that railways must accept the obligation to undertake these socially important but unremunerative jobs.

How much should Cinderella pay for her broom? This becomes a matter of social policy. But so are a great many other things in the world of transport. The only comparison we can make here is that if the railways paid the same "tax" per passenger-mile or ton-mile as the bus or heavy lorry pays, and in return were reimbursed their actual expenditures on track and signalling, they would probably be many tens of million pounds a year better off—at any rate on present levels of utilisation. Alternatively, if the railways paid the same fuel duty as road transport (including steam and electric power at their oil equivalent) in place of the track cost now put upon them, they would be about £70 million a year better off and the competitive and strategic consequences of this would be of some moment! All of which may not prove very much, but it helps to highlight the arbitrary position in which society finds itself so far as track cost is concerned.

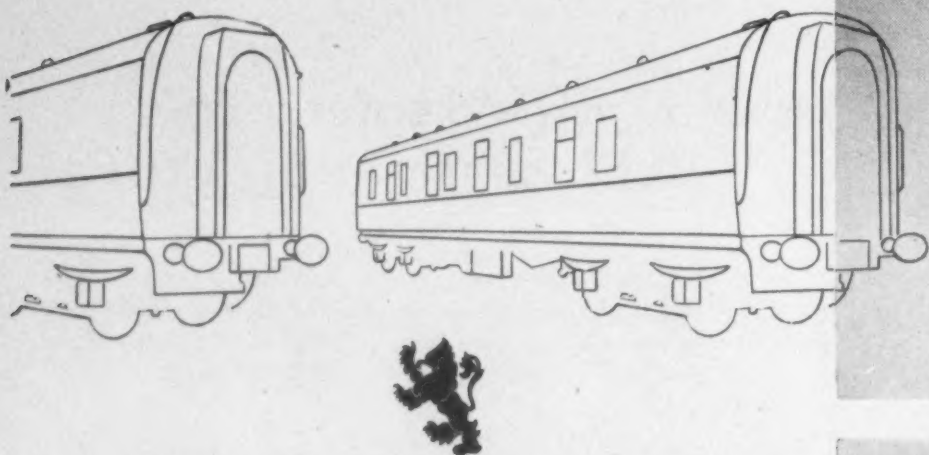
ATTRACTIVE ANNUAL REPORT

Simms Motor and Electronics Corporation

THE practice of dressing up annual reports with descriptive matter about the company concerned or its products has been growing in recent years and when done well it can form a valuable promotional medium. It is surprising how little some stockholders know of the enterprises they support, much less the public at large. A recent attractive example of this form of publication that came to our notice was the annual report and statement for 1958 of Simms Motor and Electronics Corporation, Limited, which, the work of that organisation's own public relations division, was the more commendable in that it was produced during the printing dispute.

It is useful to be reminded of the pioneering part played, both in technical development and in the associations of manufacturers and traders and users, during the formative years of the British motor industry by the group's founder, Frederick Richard Simms, who was undoubtedly one of the industry's prodigies. The publication itself does a little pioneering in depicting forty years' growth of the Simms enterprise graphically in transit, which is believed to be the first time such use has been made of this medium. Text and illustrations showing the wide diversification of the current activities and interests of the group should encourage optimism in future prosperity.

United Dominions Trust, Limited, has opened a new branch office at 7-9 Cowgate, Peterborough.



British Railways 50-foot Gangwayed Standard Brakevan.

A wagon every 12½ minutes

At Pressed Steel's Paisley factory the production of railway wagons has been as high as the unprecedented figure of one every 12½ minutes. All in all, Pressed Steel have produced one hundred thousand railway wagons in the last ten years. Wagons of all types, for all gauges, at home and abroad. You see some of this rolling stock opposite.

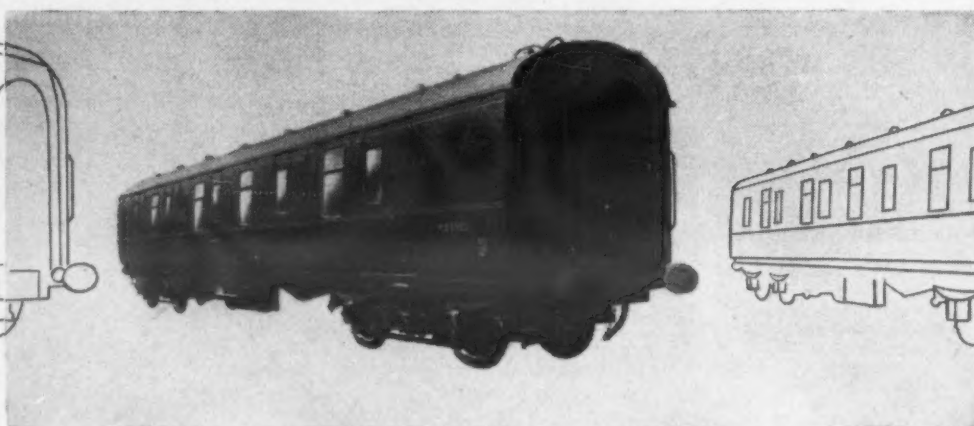
The figures prove that Pressed Steel have tremendous productivity—and a rich store of engineering experience. But they tell only part of the story. For they do not show the progressive approach of our design staff, the quality of engineering that goes into each job, and our record for prompt delivery. Nor do they show how constant, intensive research has made Pressed Steel ready to play an active part in the future development of the world's carriages and wagons.

PRESSED STEEL COMPANY LIMITED

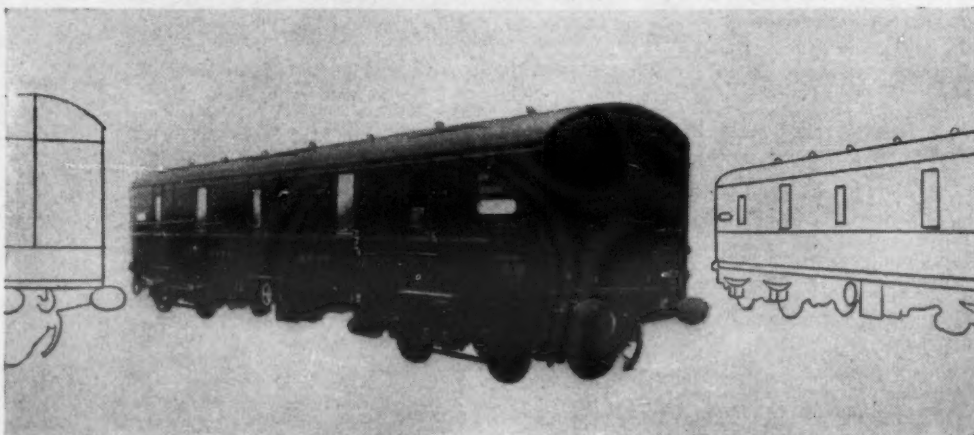


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16-ton all steel Mineral Wagon. 72,000 of these have already been delivered from our Paisley works.



British Railways 57-foot Utility Van.

HEAVY DUTY FORK TRUCK

With Reduced Turning Radius

PRODUCTION of Matbro heavy-duty fork-lift trucks has recently been moved from the Wallington factory of Mathew Brothers, Limited, to a new factory at Horley, Surrey, and a new company, Matbro, Limited, has been formed



Matbro series III fork-lift truck demonstrates its tight turning radius

to administer this side of the business. The Matbro range of fork trucks has been available for some time for specifically outdoor, heavy-duty applications over rough going but has suffered the inevitable limitation that large wheel sizes hampered the turning circle, with serious repercussions on the usefulness of the truck within buildings or in cramped quarters outside. The series III truck, comprising three models with capacities of 4,500 lb., 6,000 lb. and 8,000 lb. respectively, overcomes this limitation, resulting in a turning radius of only 96 in. (99 in. for the largest model) without sacrifice of the rugged attributes by which Matbro trucks are known.

The smaller turning circle has been achieved by careful design of the steering geometry and configuration of the chassis sidemembers. Power assistance is provided. The standard power unit for the series III truck is a Fordson 4D diesel unit, coupled to a hydraulic torque converter with two speeds forward and one reverse. Maximum speed in the forward direction is 11 m.p.h. Driving wheel tyres are size 7.50-20, 10-ply, and steering wheels 6.50-15, 8-ply, in the case of the two smaller models; in the case of the 8,000-lb. truck the driving wheels are fitted with 8.25-20, 14-ply tyres and those on the steering wheels are again 6.50-15, 8 ply.

Hydraulic Vehicle Loader

PORTABLE EQUIPMENT POWERED BY TAKE-OFF

THERE is a growing tendency to use portable vehicle loaders or unloaders in order to reduce turnaround time, double handling where there is a long carry, and even to reduce manual fatigue to the driver or other personnel. Such equipment stands a better chance of wide appeal if it is truly portable, trouble-free and reasonable in first cost. Adaptability is another welcome asset.

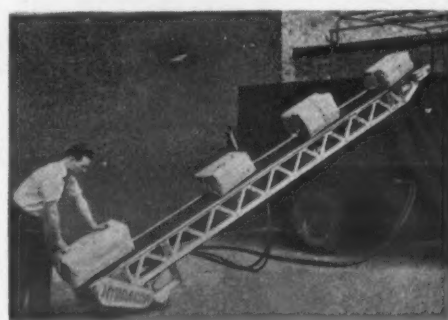
Aero Controls, Limited, Weedon Road, Northampton, working in close association with Service Engineering, Limited, announces a new piece of loading and unloading equipment known as the Hydracon hydraulic conveyor, which is specially designed to meet such requirements. It is claimed that the Hydracon offers advantages over other equipment, suits a wide variety of loads, can, it is claimed, be carried by the delivery vehicle and is very competitive in price. The standard unit will handle castings, packages, sacks and other small units, in single or multiple loads, up to 120 lb. Heavier loads can be accommodated by the use of ball-bearing idlers. When troughing idlers are incorporated, bulk loads such as stone, gravel, coal, grain, sugar beet, etc., can be moved.

Aluminium Alloy Frame

The Hydracon design is based on a welded frame of high-grade aluminium alloy extruded sections which provides a light, but strong structure, resistant to corrosion and which does not require painting. It is mounted on two wheels at the lower end and can easily be handled and operated by two men, one at each end. The rough-faced rubber belt which runs at 200 ft. per min. is 10 in. wide but conveyors can be supplied to suit 12, 14, 18 and

24-in. belts, and operating speed can be reduced. The distance between pulley centres is 15 ft., this can be increased to 20 or 25 ft. When rough-faced belting is used, incline angles in excess of 30 deg. may be used, giving a take-off height of 8 ft. 6 in.

The hydraulic pump is driven by power take-off on the lorry engine or, alternatively, by a small



Loading packages into a high-sided vehicle with the Hydracon conveyor

petrol engine and the conveyor drum is driven by hydraulic motor through V belts and a reduction gearbox. Connection between the power unit and hydraulic motor is by rubber hose fitted with quickly detachable, self-sealing couplings which ensure no oil is lost when coupling or uncoupling. Bleeding of the hydraulic system is obviated.

COMMON MARKET

Wilmot Breeden Penetration

BRITISH specialised technique has made an important penetration of the French motor industry, gaining a bridgehead for motor vehicle components in the European Common Market. This results from the acquisition by Wilmot Breeden, Limited, Birmingham, of a majority holding in the French company, Autocoussin Dura, S.A., France's largest manufacturer of locks, window regulators and other components for motor vehicles. The transaction has the necessary full approval of the French Office de Change and of the Directorat des Industries Mecaniques.

Autocoussin Dura has a factory in Paris, while a second factory at Evreux will be in full production by the end of 1960 and will provide capacity for increasing turnover by 100 per cent. Wilmot Breeden's leading position in this specialised field stems from its research and development division, set up in 1954 at Umberslade Park near Birmingham, to carry out research into the science of mechanisms. One of the more recent outcomes of the division's work is the zero-torque lock, which represents a fundamentally new approach to the design of locking systems. Already being fitted to the Farina range of British Motor Corporation cars, this type of lock, through the medium of Autocoussin Dura, is gaining a wide acceptance in France, and has been in production, through licensees, in Italy since last March.

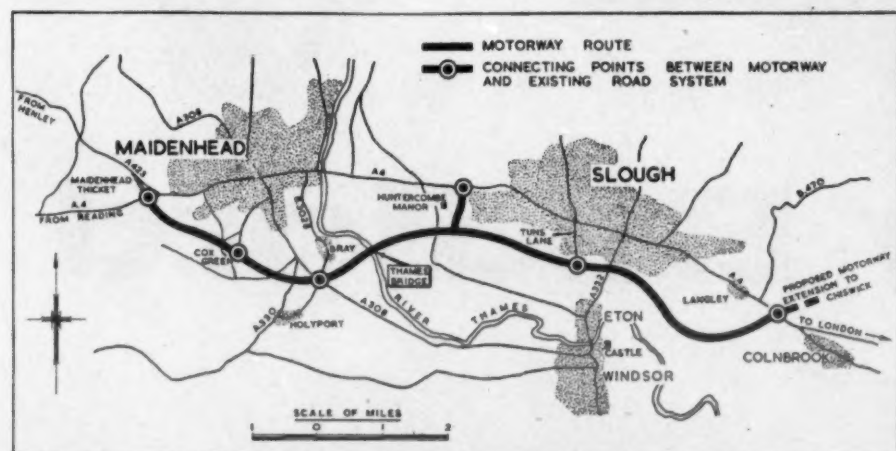
SYNTHETIC LATEX

Higher Production at Hythe

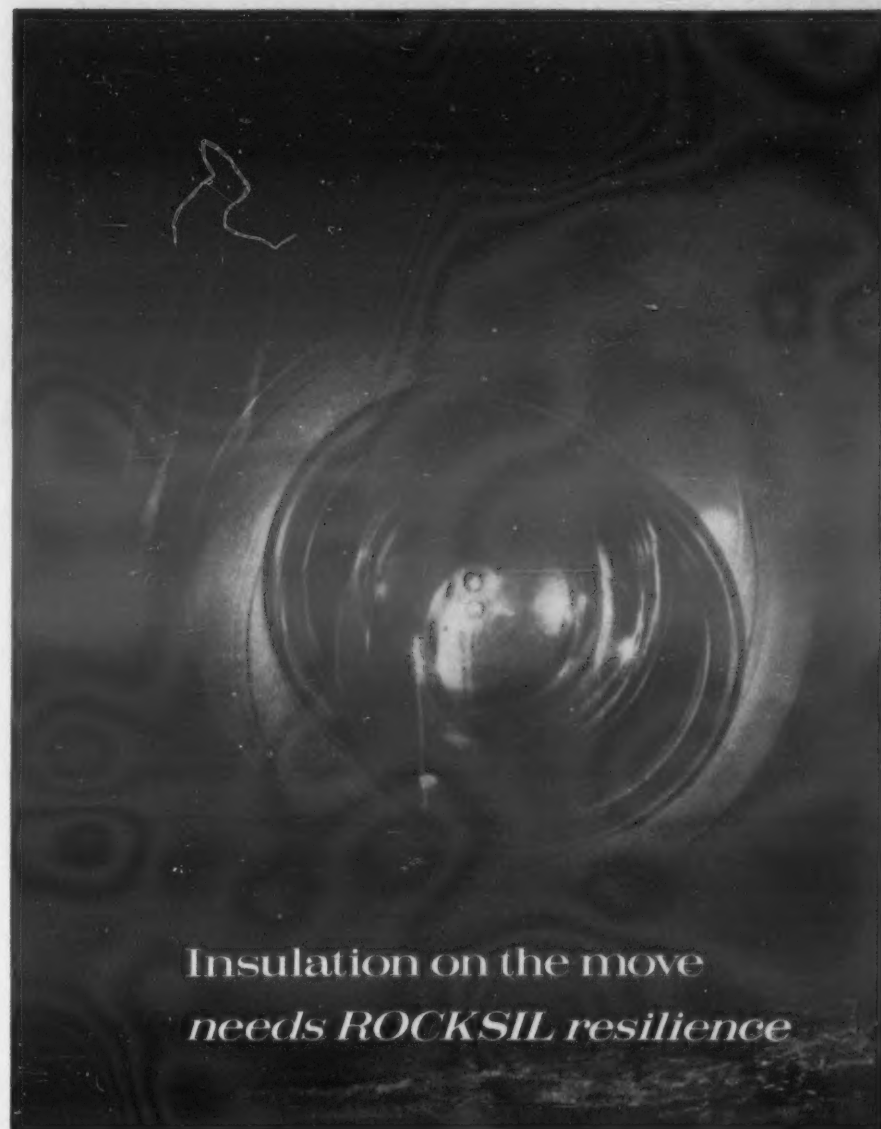
TOWARDS the end of the first year of bulk production at its Hythe, Southampton, plant, the International Synthetic Rubber Co., Limited, announces that work has started on a new plant to produce general-purpose synthetic rubber latex. The new plant has been designed to produce 2½ million gal. of rubber latex a year for use in foam rubber articles and components for inclusion in the products of many different industries.

The International Synthetic Rubber Company's plant, costing £6 million, was opened less than a year ago and was Britain's first venture in the bulk manufacture of general-purpose synthetic rubber. The plant has a capacity of 70,000 tons a year and makes the United Kingdom independent of overseas sources of this material, in addition to which, during the last 11 months, exports have been made to many overseas markets, including Australia, South Africa, Norway, Sweden and Europe.

Wolf Electric Tools, Limited, has introduced a maintenance service scheme, under which industrial users of its products are offered a maintenance service contract covering two, three or four comprehensive overhauls a year, depending on the type of service for which the tools are being used.



The route of the Slough and Maidenhead by-pass which is under construction to motorway standard. Contract No. 1 for the Huntercombe Manor to the Thames bridge section was recently awarded to Higgs and Hill, Limited, as recorded in our last issue



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OFFICIAL NOTICE ANNOUNCEMENTS

Official Notices, Tenders, and other announcements, can be accepted up to first post Tuesday morning for insertion in the current week's issue.
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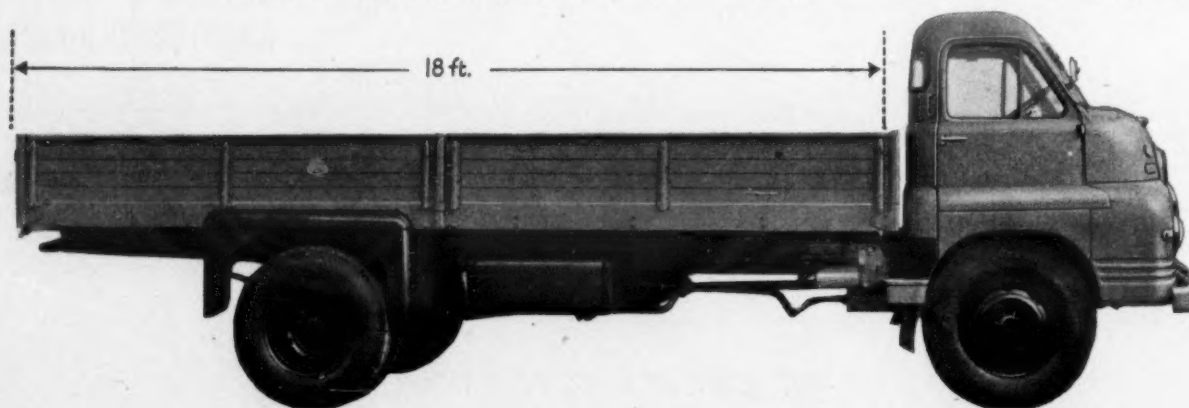


Wheelbase 168 in. Inside body length 18 feet,
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7 ton extra long dropside lorry with
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An extra foot on the wheelbase, an extra *two* feet on the body, giving a clear 18 ft. inside length! Here's a plus that puts the Bedford 7-tonner, already leader in its class, still further ahead in the big-load-carrying field... Look it over, this sturdy made-to-take-it job; it has everything... Stalwart strength in that 10-inch-deep frame now stiffened with *six* cross-members. Safety in that forward control, that all-round vision, those superlative brakes. A choice of three engines: 300 cu. in. petrol, 300 cu. in. diesel and 350 cu. in. diesel. Comfort and easy handling to please the driver. Economy in maintenance and running costs to please the owner. And of course, as with every Bedford, the famous nation-wide Bedford service. Yes, where there's a lot to carry, in bulk or weight, on long haul or short, week in and week out without trouble, Bedford's *extra-long* 7-tonner is the truck for the job.

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TANGANYIKA RAIL LINK

Connection between Central and Tanga Lines

AT the recent meeting of the East African Transport Advisory Council the question of linking the Tanganyika Central and the Tanga lines of the East African Railways and Harbours Administration was considered and the advantages accruing from the construction of such a link were discussed in detail. The railway management reported that since its last meeting held in April of this year, when the Transport Advisory Council approved the expenditure of £18,000 on an engineering survey of the 117-mile route from Ruvo to Mnyusi, it had been possible to make a close examination of the economic case for the building of the new line.

Economic Benefits

This study had revealed that, after taking all the factors into account, the linking of the two systems by railway would strengthen the East African economy. Direct movement by rail would become possible between the main towns of the three territories and would, for instance, reduce the cost of movement of wheat from the Nakuru area to Dar es Salaam, of asbestos products from Tororo to Dar es Salaam and of millet from Mpanda to Moshi. There would be an improvement in the competitive position of the E.A.R. and H. and of traders using E.A.R. and H. services, because transit times between Kenya, Uganda and the Northern Province of Tanganyika on the one hand and Dar es Salaam and the rest of Tanganyika on the other would be reduced.

New flows of traffic would be stimulated such as perishables from the Northern Province of Tanganyika to Dar es Salaam and there should be a reduction in claims and terminal wagon user by avoiding transshipments at rail-lake or rail-road exchange points.

From the railway point of view it was considered

that a link between the two systems would be desirable and that if it were built there would be a saving in the capital cost of rolling stock. Because of the occurrence of traffic peaks on the Kenya-Uganda and Tanganyika system at different times of the year—the seasonal traffic peak on the former occurs during the months of January to March and the peak on the latter during the months of July to November—sufficient rolling stock must be maintained on each part to meet the local peak. If the link line were built the total fleet of rolling stock need only be sufficient to meet peak traffic conditions on the larger part of the system because rolling stock could be transferred as required.

Difference in Braking Systems

Because of the difference in the braking system used in the two areas—all locomotives and rolling stock on the Central Line are fitted with vacuum brakes, whereas air brakes are in use on the Kenya-Uganda and Tanga section—it would be necessary to convert one or other of the two systems of braking, but the cost could, to some extent, be offset by the fact that about 350 fewer wagon units would be required.

The Transport Advisory Council accepted in principle that there was a case for the link, and asked that full details of the estimated cost should be made available after the completion of the engineering survey when a decision would be made in the light of other financial commitments and priorities with which the East African Railways and Harbours was then faced. The survey party has been in the field since July and it has now made a detailed survey of the first 21 miles of the alignment through the relatively difficult country at the northern end. It is hoped that the party will complete its work in the field by about February, 1960.

Computers and Transport

THEIR USE BY THE B.T.C.

WHEN Brigadier G. H. Hinds, electronics advisory officer, British Transport Commission, presented a paper to the British Association meeting in York, he pointed out that Sir Marc Brunel was a member of the governmental committee which in 1823 examined the proposals of Babbage, the first computer designer. The British Association had discussed mechanised computation on at least two recent occasions. Outlining the principal characteristics of automatic computers and citing some examples of their use in the British Transport Commission and proposals for their further exploitation, he commented that the proposal to use a computer for seat reservations, although technically elegant, was dropped for economic reasons. The first task completed, in hired computer time, was the calculation of the shortest distances between the 4,000 local groups of railway freight terminals, so saving about 200 man-years.

The first computer to be acquired by any railway in Western Europe was calculating the weekly pay at Swindon, and had also been used to check the method for stores accounting. British Railways now had eight computers working on these two tasks. In addition teams were examining various office schemes of increasing complexity, one of these covered the hotels, refreshment rooms, and dining cars. The working units were widely scattered and the possibility of sending the data rapidly and accurately over teleprinter lines posed engineering and administrative problems.

Ticket Machines

Both buses and railways had to audit and extract traffic information from the records of tickets sold. This would be facilitated if the issuing machines could generate these in computer language, and proposals, using punched tape or an electronic character reader were being examined. The principle of generating data at source in computer language was being used by London Transport on BES1, the device which signalled the identity of a bus as it passed a series of fixed points. A similar machine was being perfected to do the same for freight wagons and how best to use this information was being studied.

The British Transport Commission expected its greatest benefits from using computers as tools of operational research. It had optimised the distribution of locomotive coal and was examining such further problems as shop loading and minimum store holding. The railway research department used a computer for trials analysis and many engineering problems, while two further investigations of a different nature, which the rail-

ways had in hand were attempts to use a computer to compose railway timetables, and computer logic to design the interlocking diagrams in signalboxes. The objectives in all this were to provide improved transport services, with improved safety and reliability, at an economic cost. Success demanded both imagination and close detailed examination.

PUBLICATIONS RECEIVED

SIMPLE NOTES ON LEAD AND ITS USES. Much in demand over the past four years by students seeking a working knowledge of the mining, smelting and refining of lead and its many uses, this four-page brochure has now been brought up to date and reprinted by Lead Development Association, 10 Adam Street, London, W.C.2, from which copies are available.

TERYLENE SAVES. . . . A new publication now available from Imperial Chemical Industries, Limited, Imperial Chemical House, Millbank, London, S.W.1, which illustrates and describes some of the many uses of Terylene in modern industry, with particular emphasis on the greater economy and increased efficiency made possible through the introduction of this I.C.I. polyester fibre.

TRI-MOR DENSE GUNCRETE. A brochure produced by the Morgan Crucible Co., Limited, Battersea Church Road, London, S.W.11, for its subsidiary, Morgan Refractories, Limited. It describes and illustrates a newly developed Tri-Mor refractory material suitable for application by cement gun without the need for shuttering, which greatly reduces construction time and cost of large structures.

THE GEON STORY—EVERYMAN'S GUIDE TO PVC PLASTICS. The important part now played by p.v.c. in every walk of life is the theme of this lavishly illustrated publication issued by British Geon, Limited, Devonshire House, Piccadilly, London, W.1. In over 40 pages, with the aid of more than 80 photographs, the book shows how Geon p.v.c. is made and how it is converted into various end products and applied in many branches of industry.

PERMANENT MAGNETS SUMMARISED. A booklet recently prepared by James Neill and Co. (Sheffield), Limited, Sheffield, 11, manufacturer of Eclipse permanent magnets, magnetic chucks and magnetic tools in the form of a book of general technical information on magnet design and materials. An illustrated guide for all those who find their interest in the use of permanent magnets either in production, laboratory or technical study and instruction.

INSTITUTION OF RAILWAY SIGNAL ENGINEERS—PROCEEDINGS, 1958. During the year valuable papers were read to the Institution on subjects ranging from the B.T.C. automatic train control apparatus to interference from 50-cycle high-voltage traction currents and geographical circuit technique; with many other matters they are on the record in this volume, together with the discussion on them and notes on visits and social events. The volume is available to non-members at 15s. from the hon. general secretary Mr. R. L. Weedon, Room 252, British Transport Commission, 222 Marylebone Road, N.W.1.

ROCKITE K501 POLYESTER DOWGIL MOLDING COMPOUND. A new technical bulletin published by British Resin Products, Limited, Devonshire House, Piccadilly, London, W.1. Rockite K501 provides outstanding strength combined with excellent electrical properties. It can be moulded under low pressures giving the advantage of reduced pressure rating for presses and often eliminating the need for high-tensile moulds. The material has an easy flow and cures rapidly to give mouldings with high impact strength, excellent electrical properties and good dimensional stability. The compound possesses good light and heat stability and retains high mechanical strength after exposure to temperatures up to 200 deg. C. It is available in a wide range of colours.

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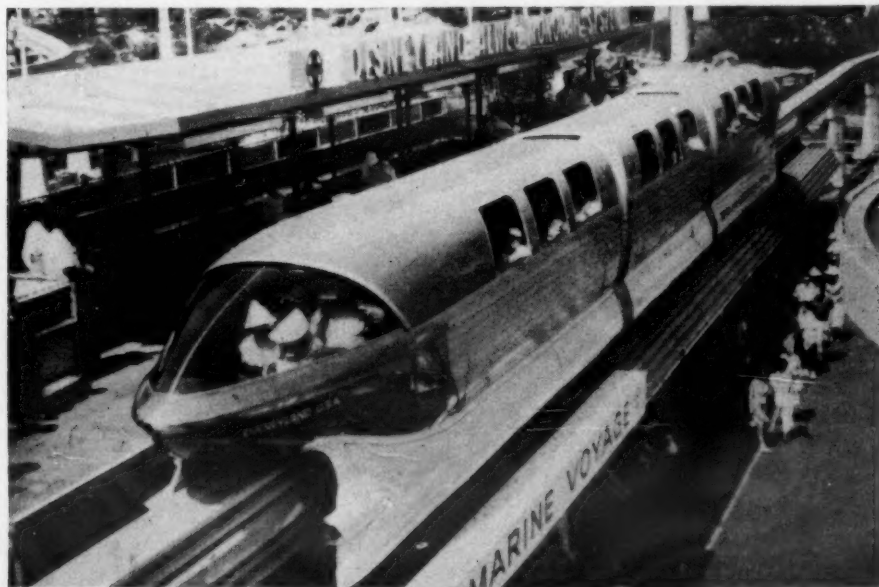


Photo
A visit to the recently completed Alweg "monorail" in the Disneyland amusement park, Los Angeles, run by Walt Disney, the film producer, showed speed cut down from the projected 24 m.p.h. to 15 m.p.h., and it was reported that considerable tyre wear was experienced

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OFFICIAL NOTICES

CANADIAN MOTORWAYS LIMITED

APPOINTMENT OF DIVISIONAL
ENGINEER

APPLICATIONS are being invited for the position of Divisional Engineer with the Canadian Motorways Group in Canada. The position is a new one and the successful applicant will be based on Winnipeg and be responsible for engineering matters, including fleet maintenance, in Western Canada, including the provinces of Manitoba, Saskatchewan, Alberta and British Columbia.

Canadian Motorways, Limited, is a subsidiary of the British Electric Traction Co., Limited, and through its operating companies is engaged in the operation of freight services in every Canadian province. In addition the group operates a household goods moving and warehouse system throughout Canada. It is not concerned with the operation of buses or coaches. The headquarters of the group are at Toronto where the chief engineer is located. The total number of vehicle units operated by the Group as a whole exceeds 2,000.

Any applicant for the position should have had suitable technical training and qualifications, up to at least graduate membership of the Institutes of Mechanical and Electrical Engineers, and experience in heavy commercial vehicle maintenance work (lorries or buses) and of control of staff. It would be an advantage if he were under the age of 35.

Application, which will be treated in confidence, should be sent to Mr. T. Robert Williams, the Chairman of Canadian Motorways, Limited, at Stratton House, Piccadilly, London, W.1, before October 2 next, and should give full particulars of the applicant's education, qualifications and career (including his present and all previous appointments), with a front cover sheet showing:

1. Name and address.
2. Age.
3. Whether single or married, and in the latter case, the number and ages of any children.
4. Present appointment.
5. Present salary.

CANADIAN MOTORWAYS LIMITED

APPOINTMENT OF WORKSHOPS
SUPERINTENDENT

APPLICATIONS are being invited for the position of Workshops Superintendent at the Toronto headquarters of the Canadian Motorways Group. The successful applicant will take charge of a modern workshop at Toronto where the maintenance of the rolling stock of the group is being concentrated.

Canadian Motorways, Limited, is a subsidiary of the British Electric Traction Co., Limited, and through its operating companies is engaged in the operation of freight service in every Canadian province. In addition, the group operates a household goods and moving and warehouse system throughout Canada. It is not concerned with the operation of buses or coaches. The headquarters of the group are at Toronto where the chief engineer is located. The total number of vehicle units operated by the group as a whole exceeds 2,000.

Any applicant for the position should have had broad experience in workshop technique and supervision (lorries or buses) and have the ability to co-ordinate the various sections of a heavy commercial vehicle workshop. He should have an appreciation of systems of records and stores, and the ability to read drawings would be useful. It would be an advantage if he were under the age of 45.

Applications, which will be treated in confidence, should be sent to Mr. T. Robert Williams, the Chairman of Canadian Motorways, Limited, at Stratton House, Piccadilly, London, W.1, before October 2 next, and should give full particulars of the applicant's education, qualifications and career (including his present and all previous appointments) with a front cover sheet showing:

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3. Whether single or married, and in the latter case, the number and ages of any children.
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The GENERAL STEAM NAVIGATION CO. LTD.
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COACHBUILDING IN
SCOTLAND

(Continued from page 6)

steam, and another new building added recently is a large Dutch barn built to provide overhead cover for chassis awaiting bodies.

Palletisation

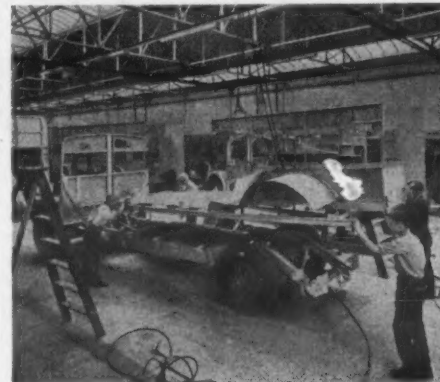
The key to orderly flow of materials and components through the factory is the system of palletisation adopted, which starts at the raw-materials store. Here, all sheet material is stored on pallets and sections on stillages, designed for stacking one above the other to a height of about 11 ft. and for direct placement and removal by fork-lift trucks. Materials are moved on their stillages and pallets as required to the machining and welding sections and from these departments to the metal-treatment shop.

Metal treatment is carried out in a Jenolite plant comprising six steam-heated tanks providing suitable chemical processes for the various metals dealt with, generally finishing with a chromate rinse. The tanks are served by overhead electric cranes designed to handle the stillages on which the components are stacked. To ensure that both sides of sheet material receive proper treatment, special "toast-rack" stillages keep the sheets separated as they pass through the chemical baths. After the anti-corrosive etching rinse, the parts pass on an overhead conveyor through a spray booth, where they receive a coat of primer, and thence without further handling through a gas-heated drying oven, whereafter they are held in the finished parts store until required for assembly.

Sub-assemblies

Adjacent to the finished parts store is the sub-assembly section, where floors, sides, front and rear ends and so on are built in jigs. These units are fed on overhead cranes at right angles to chassis already prepared by fitters on the main four-track assembly line. From then onwards the chassis and body shell move along the line, being met at appropriate points by components and materials, such as shaped panels, window pans, mouldings, electrical equipment and so on, which are fitted progressively by the various craftsmen.

The paintshops, which are enclosable and heated by radiant steam panels, form an extension of the main assembly line and are equipped for brush or



Overhead cranes crossing the main assembly line place the larger sub-assemblies, in this case a double-decker underframe and floor, on the prepared chassis

spray painting as specified by the customer. After painting, vehicles are moved to the finishing shop, where seats produced by the conveniently sited seat squad and trimmers and other furnishings are fitted, as well as polished exterior mouldings and the like.

On the floor at present are Gardner-engined Daimler double-deckers, part of an order for nearly 200 bodies on various chassis for Glasgow Corporation; Guy Arab single-deckers, part of an order for nine dual-purpose bodies for Western S.M.T.; A.E.C. Reliance single-deckers of an order for 24 for W. Alexander and Sons; and Leyland Titan double-deckers for Western and Central S.M.T. companies, while work is going on for 17 78-seat bodies for Leyland Atlanteans for Northern General.

There is much of interest in the new Alexander factory, from the quickly adjustable platform gantries used along the main assembly line and in the paintshop to the high-density stillage battery storage area, which accommodates 50 sets of batteries in a very small floor area. Also notable is the expanding plastics shop, where such items as front and rear domes, translucent van roofs, heating ducts, wings and corner panels are now produced with great facility. A feature of the front and rear domes for the Glasgow double-deckers is their "inside-out" arrangement; male moulds are used, which brings the smooth jet-coat finish to the inside, thus eliminating the need for additional interior panelling.

The India Tyre and Rubber Co., Limited, announces the opening of a new depot in Trinity Street, Sheffield, 3 (telephone 21318-9).

The Small and Parkes depot at Coventry has moved from its old location to a new building at 8 Lamb Street, Coventry (telephone Coventry 64914). Speedy and efficient relining service for all types of Don automotive and industrial brake linings and clutch facings is available.

The entire offices and works of Hardy Spicer, Limited, have now been transferred to new premises at Chester Road, Erdington, Birmingham, 24 (telephone Erdington 2191). These premises, providing improved accommodation, now enable all activities to be concentrated under the same roof.

New offices at 23-24 King Street, London, S.W.1, are now occupied by Dunlop. The offices, built on the site formerly occupied by the St. James's Theatre, have been named St. James's House. The company's head office, St. James's House, at 25 Ryder Street, London, S.W.1, has been renamed Dunlop House.

The deepest test well yet to be drilled in Libya for BP Exploration Company is to be "spudded in" in mid-October. It will be the first well to be drilled in a BP concession in Cyrenaica, some 200 miles south of Tobruk and the same distance from the Egyptian frontier. BP Exploration Company has previously drilled three test wells in Libya, in which it has more than 70,000 square kilometres of concessions.

GRACEFUL GIRDERS OVER THE RIBBLE
ON BRITAIN'S FIRST MOTORWAY

SAMLESBURY BRIDGE—PRESTON BY-PASS
OPENED BY THE PRIME MINISTER 5th December

The graceful lines of the new Samlesbury Bridge are made possible by modern welding technique employed by CLEVELAND. The eight 158 ton triple span steel box girders were assembled on site from many prefabricated sections giving the smooth unbroken contour which is a feature of the design.

Design and supervision by Mr. James Drake, B.Sc., M.I.C.E., M.I.Mech.E., County Surveyor & Bridgeman, Lancashire County Council.



CLEVELAND

THE CLEVELAND BRIDGE & ENGINEERING CO. LTD. DARLINGTON, ENGLAND.

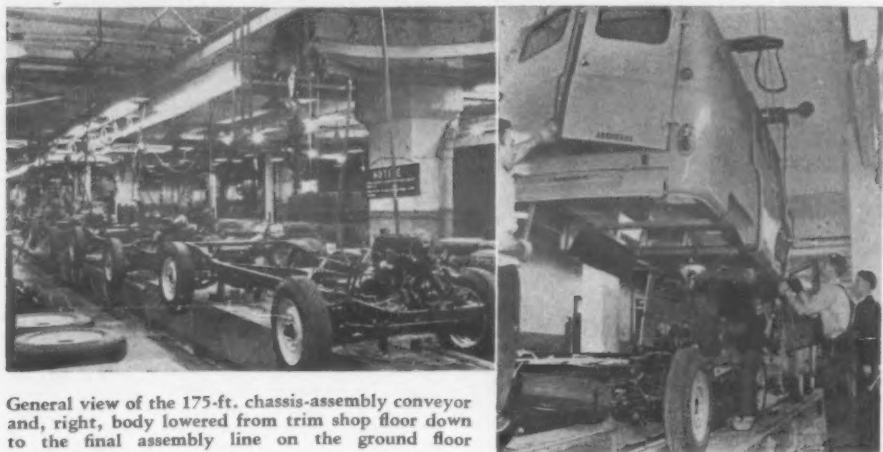
LIGHT VAN PRODUCTION

Bedford Expansion on New Assembly Lines

PRODUCTION of the Bedford light van has been increased by 20 per cent from 7½ to 10 units an hour as a result of a major reorganisation just completed at Vauxhall Motors Luton factory. The new assembly line installation was completed while the factory was closed down for the annual fortnight's holiday. All light van body production and final assembly operations are now gathered together in one three-storey building.

Floor space for van body building, body metal-finishing, chassis assembly, and final assembly has gone up by 45 per cent to 119,000 sq. ft. Night-

stalled in this area to cope with the extra output. More space and additional equipment have been provided for chassis-frame welding and for the chassis assembly operations. The latter, previously a push line on skid rails and roller track, is now also equipped with a power-operated conveyor track. It is a single slat power-operated chain conveyor running at bench level, 175 ft. long, holding 12 chassis. On this line, the chassis is completed and receives engine, transmission, axles and wheels. Brake-bleeding is also carried out at this stage. The chassis is then slung on an over-



General view of the 175-ft. chassis-assembly conveyor and, right, body lowered from trim shop floor down to the final assembly line on the ground floor

shift work on the assembly line has been eliminated. Some 10,000 sq. ft. of the extra space has been reclaimed by filling in three light wells and the remainder has been cleared by relocating stores, welding maintenance and sub-assembly operations for the cabs, which formerly occupied this area.

Chassis assembly and final assembly are carried out on the ground floor; van body production on the first floor, and paint and trim operations on the top floor. Van painting and trimming operations are done on the same line as the cabs for Bedford lorries. Connection between the various floors is by means of freight lifts and by apertures cut in the floors where they are needed.

New Power Conveyors

Bodybuilding operations formerly took place on a 350-ft. long hand-push line, while metal-finishing operations followed on a short floor conveyor system. Now, building and finishing take place on two separate power-operated conveyors 350 ft. and 370 ft. long respectively. The building line holds 20 bodies and the metal-finish line 24. Additional sub-assembly equipment—welding machines, welding fixtures and related plant—has been in-

head monorail and taken to the final assembly line a few yards away.

The final assembly line, previously a two-strand chain, is now a twin-strand slat-type conveyor like that used on the Vauxhall passenger car assembly system. It has been increased in length from 160 to 278 ft. and holds 16 vans at a time. In addition, the final finish and final inspection line now has a power-operated conveyor system—a single-strand slat-type of 124 ft. Under the old method, the vehicles were driven through the final finish stations under their own power.

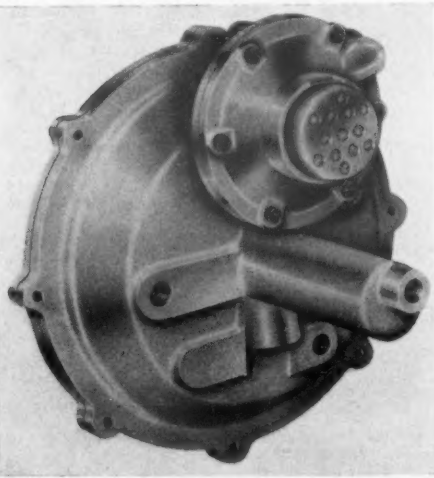
The production of front-end grille and radiator shell assemblies has also come in for replanning. Formerly made up on individual bench jigs, they are now assembled on a new roundabout conveyor. This consists of a pair of rails at bench level, arranged in a continuous oval. On the rails run 10 wood-framed wheeled assembly jigs, which are passed around the circuit from station to station until they are complete.

Over 132,000 Bedford light vans have been built since the first example of the present model was introduced in 1952. It is expected that output in 1959 will exceed 35,000 vehicles.

POWER-ASSISTED BRAKING

For Cars and Light Vans

POWER-ASSISTED braking for cars and light commercial vehicles is provided for in a new vacuum-hydraulic brake servo introduced by the Clayton Dewandre Co., Limited. The servo is a suspended-vacuum unit which utilises intake manifold vacuum and atmosphere pressure for its operation. It consists of a power chamber containing a diaphragm and a pushrod which operates a piston in an integrally-cast hydraulic cylinder, control being effected by a hydraulically-actuated vacuum and atmosphere valve. The latter is attached to a diaphragm contained in a valve chamber which provides reaction to the applied pressure. The braking effort obtained is



The Clayton Dewandre vacuum-hydraulic brake servo for light vehicles

claimed to be progressive and at all times the driver is provided with a sensitive appreciation of the precise degree of braking.

The unit is light and compact and being self-contained has no external rods or levers exposed to dirt and moisture. It is so designed as to allow normal hydraulic braking in the event of vacuum failure, when, for example, the engine stalls.

Fitting the unit, which will usually be installed under the bonnet, is simple and a comprehensive fitting kit, including fitting instructions, is included in the unit price. All that is required is to mount the servo, cut the hydraulic brake line and make two connections and connect the servo to a tapping on the intake manifold. The kit, which will make the servo almost universally applicable, includes support and steady brackets, rubber hose and two 6-ft. lengths of steel tubing, banjo and other connections and unions, and an intake manifold connection which is provided with a branch pipe for such services as windshield washers.

The servo will be on view to the public at the International Motor Show at Earls Court from October 21 onwards and at the Scottish Motor Show, which opens at Kelvin Hall on November 13. The price of the complete kit (unfitted) is £15 10s.

SEALED WHEEL RIM

Goodyear Unit for Tubeless Tyres

CLAIMED to be a major step forward in wheel rim design and the first sealed rim specifically designed to take either tubed or tubeless tyres on commercial vehicles is the Job-Master rim introduced by the Goodyear Tyre and Rubber Co., Limited. Past experience has shown that with the one-piece drop-centre rim, the advantages of tubeless tyres on commercial vehicles have not been fully realisable. Goodyear engineers, making a new approach to the problem, are said to have developed a rim that is equally suitable for the fitment of both tubeless and normal tubed tyres.

The Goodyear Job-Master rim employs a uniform 3-deg. tapered head seat which completely supports the full width of both tyre heads. A removable flange and bead seat are one integral continuous ring under which is mounted a rubber sealing ring to keep out water, grit and other matter. The normal arrangement is to employ a sealed round valve hole, though a slot for the valve can be provided if requested.

For its dual-purpose character, the new Goodyear rim will certainly be welcomed by vehicle manufacturers as an important contribution to standardisation.

★ VENEER LAMINATES

For Road and Rail Coach Interiors

PRODUCTION of plastic laminates, finished with decorative real wood veneer and which do not need polishing, is announced by Bonded Laminates, Limited, C. H. Veneer Mills, Chisenhale Road, London, E.3. The laminates, which are of particular interest to the coachbuilder, are marketed under the trade name Belfort. They are impregnated with a Cellobond melamine resin and combine the natural decorative beauty of wood with the durability inherent in plastics sheet.

The most striking characteristic of Belfort veneer laminates is that normal methods of finishing are completely eliminated, resulting in considerable savings in labour and maintenance costs. The surface abrasion resistance compares favourably with the printed paper laminates, though hardness is slightly less due to the fibre and cell construction of wood. Belfort possesses exceptional stain resistance and is unaffected by alcohol, fruit juices or household chemicals. It is not easily marked by burning cigarettes and can be cleaned with a damp cloth.

Five Standard Wood Grains

The laminate is supplied in sheets 8 ft. by 4 ft. and approximately 1/8 in. thick; slight variations in thickness must be expected due to the differences in the compressibility of the various woods employed. Five standard woods can now be supplied and this range is to be increased. The five woods are sapele, figured mahogany, figured limba, afrormosia and makore. Belfort can be cut with any high-speed fine-toothed circular saw and will bond perfectly with a normal urea-formaldehyde adhesive either cold setting or in a heated press (up to 160 deg. F.).

This type of laminate appears to be particularly suitable for panelling for road and rail coach interiors where the primary requirements are quality of finish and durability.

Cellobond Melamine Resins are manufactured by British Resin Products, Limited, Devonshire House, Piccadilly, London, W.1.

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John L. Peterson
JOHN L. PETERSON, M.B.E.,
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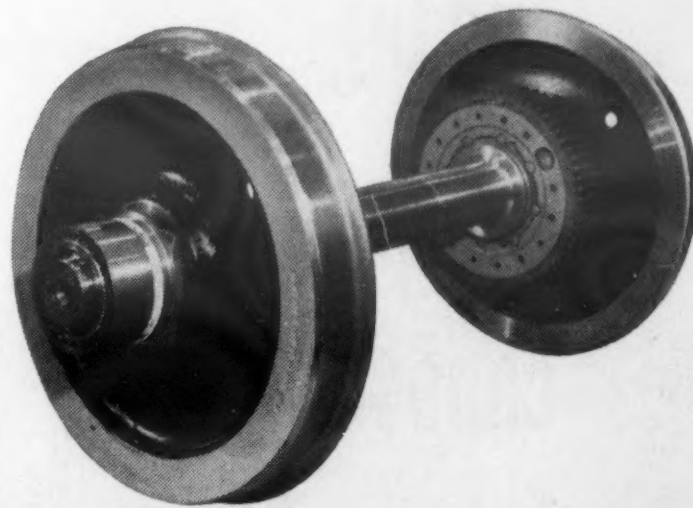
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The Next Five Years

(Continued from page 5)

will be amalgamated and modernised to reduce working expenses and to eliminate delays in transit. By 1963, it is expected that the total number of marshalling yards will have been reduced by some 200-300. The plans of the Eastern Region for marshalling yards in the Sheffield area have already been mentioned. A new marshalling yard at Ripple Lane, Barking, will shortly be in service, and the Region's programme will be virtually completed by the remodelling of the up yard at Peterborough and the construction of a new down yard there. The London Midland Region intends to build a new yard at Carlisle in replacement of eight smaller yards, and to remodel two other yards at Crewe and at Bescot (near Birmingham) with the object of enabling a further six yards to be closed.

In the North Eastern Region, nearly 70 small marshalling yards will be closed as a result of the partial reconstruction of 14 existing yards and the construction of six new ones, at West Hartlepool, at Lamesley, near Newcastle, at Stourton and at Healey Mills in the West Riding, and two at Newport on Tees-side. The Scottish Region has two new yards in service, at Thornton and at Alloa, and two more under construction at Perth and at Millerhill (near Edinburgh). The Southern Region is developing plans for marshalling yards at Ashford and Tonbridge.

A scheme has been prepared for diverting cross-London freight traffic, where necessary, by improving the capacity of the outer ring route via Bedford, Bletchley, Oxford, Reading and Redhill. As a start, work has begun on building a flyover to enable east and west through traffic to avoid crossing the main line from Euston on the level at Bletchley, and on planning a new marshalling yard at Swanbourne, Bucks. The need to improve the outer ring route as a whole depends to some extent upon a revival in heavy freight traffic, but the Bletchley flyover is an essential adjunct to the electrification of the main line from Euston to the North.

Research and Development

Research and technical development will play an increasingly important part in railway modernisation during the coming years. Important subjects have been studied during the past four years; these will be followed up more intensively in the coming period. In addition, it is proposed to make a comprehensive study of the dynamics of the rail joint and of stresses in the rail; to investigate the use of computers for solving riding and other problems,

and to make a general study of the dynamic characteristics of rolling stock. A new engineering research laboratory is to be built at Derby incorporating large-scale static and dynamic testing equipment, capable of dealing with vehicle underframes, bridge girders and concrete beams. There is no such equipment in existence in the country at present, and test work of this kind has to be carried out abroad.

A new chemical research laboratory in North London will be finished this year and will give improved facilities for such studies as the use of adhesives in the engineering field and the rate of wear of different textiles. Technical developments which are expected to mature during the next five years or so include the use of plastics for rolling stock bodies and the use of new electronic apparatus for reducing the complexity and cost of control systems, particularly for traction equipment. The organisation for operational research and that for market research are at present being regrouped and expanded to enable additional work to be carried out.

700th RAILCAR DELIVERED

Output of Metro-Cammell

THE first order for diesel railcars to be placed with a private builder as part of the British Railways modernisation plan was for 72 placed with Metropolitan-Cammell Carriage and Wagon Co., Limited, in 1954. This was followed early in 1955 by a further contract for 339 railcars, making a total of 411, consisting of two-car, three-car and four-car sets. Early in 1957 Metro-Cammell was awarded a contract for a further 160, making a total of 571, which allowed uninterrupted production to continue after completion of the previous order.

The contracts for 339 and 160 railcars have been completed and production is continuing against a later contract for 189 railcars, which are due for completion in 1960; the last six sets incorporating buffet cars. The 700th railcar was delivered last week and when this latest contract has been completed the company will have supplied a total of 760 to British Railways, of which 465 will be in service in the Eastern and North Eastern Regions, 159 in the Scottish Region and 136 on the London Midland Region.

MORE S.R. DIESEL-ELECTRICS

Stock Ordered for Oxted Line

AS mentioned editorially on page 1, the Southern Region of British Railways has been authorised to order 19 three-car diesel-electric sets to enable it to cope with what is now one of its fastest growing commuter routes. The original plan was to make do with steam trains until the Oxted Line could be electrified, but big housing developments have greatly increased the number of passengers. This is emphasised by the figures which appear in an accompanying table.

The estimated cost of the new stock is more than £1 million and it is unfortunate that because of the great demand all over the country for diesel and electric trains, work on it is unlikely to start before 1961. The sets will be built at Eastleigh and will be used as six- or nine-car trains on a number of

TRAFFIC GROWTH ON OXTED LINE

	Ordinary tickets	Season tickets
	1955	1957
Forest Row ..	17,497	28,117
East Grinstead ..	86,485	139,981
Hurst Green Halt ..	104,162	127,270
Oxted ..	129,105	168,792
Woldingham ..	22,987	28,727
Riddlesdown ..	32,476	35,810
Sanderstead ..	50,451	59,260
Hever ..	8,650	8,284
Edenbridge Town ..	43,854	50,389
	1955	1957
Forest Row ..	687	882
East Grinstead ..	2,459	5,774
Hurst Green Halt ..	1,705	2,319
Oxted ..	8,436	10,941
Woldingham ..	1,386	1,984
Riddlesdown ..	4,456	5,456
Sanderstead ..	8,198	9,604
Hever ..	259	457
Edenbridge Town ..	2,253	2,904

business services on the Oxted, East Grinstead, Tunbridge Wells West and Uckfield routes, while outside peak periods short trains will be used for practically all the London services on this line. Some business services, however, will still be hauled by steam as it is not possible to allocate enough diesel trains—urgently needed all over the country—for a complete changeover. It should be stressed that electrification continues to be the ultimate aim.

Forthcoming Events

Until September 26.—International Motor Exhibition. At Frankfurt.

September 19.—Railway Correspondence and Travel Society. Nottingham and Derbyshire Rail Tour.

Aviation Forum. Annual dinner. In Eagle Airways DC6C. Take off Blackbushe. 7 p.m.

Light Railway Transport League. Paper by Mr. J. S. Webb, "Tramways of the Black Country." At Exchange and Engineering Centre, New Street, Birmingham. 8 p.m.

September 20.—Light Railway Transport League. Tour of former Black Country tramways.

September 21-25.—Municipal Passenger Transport Association. Annual conference. At Edinburgh.

September 22.—Institution of Locomotive Engineers. Presidential address by Mr. R. A. Smeddle. At Federation of British Industries, 21 Tothill Street, S.W.1. 5.30 p.m.

September 23.—Railway Correspondence and Travel Society (South of England). Paper by Mr. R. G. Jarvis, "The Modified Bulleid Pacifics." At Junction Hotel, Eastleigh. 8.30 p.m.

September 24.—Railway Club. Informal meeting to be addressed by Messrs. R. G. Lucas and B. D. J. Walsh. At 320 High Holborn, W.C.1. 7 p.m.

Railway Correspondence and Travel Society (West Midlands). Paper by Mr. A. F. Cook, "This Time—Locomotives in General." At 64 Holyhead Road, Coventry. 7.30 p.m.

September 25.—Railway Correspondence and Travel Society. Paper by Mr. A. P. Hancock, "The North London Railway." At Railway Clearing House, Eversholt Street, N.W.1. 7.15 p.m.

September 26.—Omnibus Society. Study tour of Crawley area. Meet East Croydon Station. 2.15 p.m.

September 26-27.—Railway and Canal Historical Society. Weekend visit to Wakefield area and inaugural meeting of Yorkshire local group.

September 27.—Norbury Transport and Model Railway Club. Visit to Reading Corporation.

October 3-4.—Omnibus Society. Presidential weekend including visit to Sunderland Corporation Transport and annual dinner.

October 12.—Institute of Transport. Presidential address by Mr. R. G. Grout. At 68 Portland Place, W.1. 5.45 for 6.15 p.m.

October 12-16.—International Air Transport Association. Annual general meeting. In Tokyo.

October 26-28.—Road Haulage Association. Annual conference. At Bournemouth.

November 12.—Public Transport Association. Annual dinner. At Connaught Rooms, Great Queen Street, W.C.2. 6.45 for 7.15 p.m.

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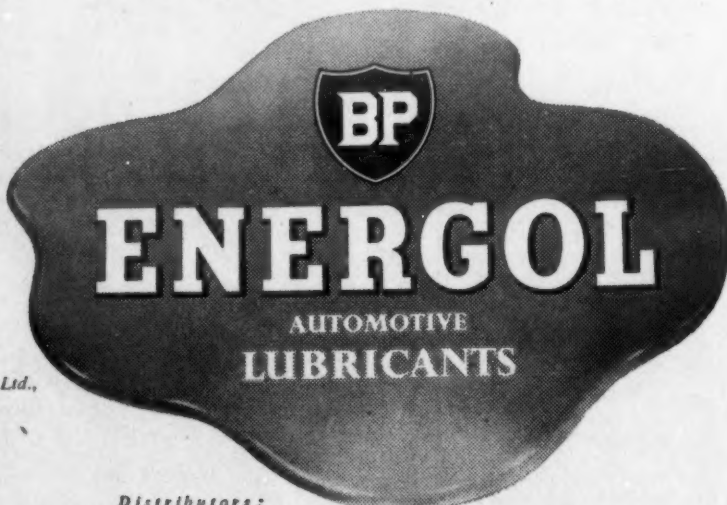
Among the tributes to the excellence of BP Energol Automotive Lubricants is this letter from Mr. George Read. "We operate a fleet of 35 vehicles consisting of A.E.C. Mammoth Majors, Leyland Octopus, Albions and others. All these are fuelled and lubricated by your products.

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SOCIAL AND PERSONAL

Death of Cunard Chairman

WE regret to record the death, at the age of 73, of Colonel Denis H. Bates, M.C., chairman of the Cunard Steam-Ship Co., Limited, since 1953. He was the third brother to occupy that post, their tenure extending over a period of almost 20 years. His death coincided with an announcement (see elsewhere on this page) that the Minister of Transport has set up an independent expert committee to advise him on issues concerning the replacement of the two Cunard "Queens." The death has also occurred of Mr. S. J. Lister, a former director and general manager of the Cunard White Star Line. He was 81.

Mr. K. Fearnside, research manager, has been appointed to the board of Smiths Aircraft Instruments, Limited, as director of research.

Mr. I. C. Forsyth, M.I.Mech.E., M.I.Loco.E., who has been appointed mechanical and electrical engineer (workshops), London Midland Region, B.R., was educated at Derby Technical College, and served in the 1914-18 war. After experience at depots in 1925 he was appointed assistant to district locomotive superintendent at Saltley and at Preston. Mr. Forsyth became assistant district

Mr. C. D. Edsforth has been appointed vice-president, traffic, Canadian Pacific Railway, following the retirement of Mr. G. F. Buckingham.

Mr. P. Rees, A.M.I.C.E., has been made organisation and methods assistant, chief civil engineers office, Paddington, Western Region, B.R.

Mr. G. E. Woodhead has been appointed district engineer, Manchester, London Midland Region, B.R., and Mr. R. Roscoe district engineer, Crewe.

Mr. A. Yeaman, O.B.E., has been appointed traffic manager for the new Northern division of the Scottish Region of British Railways. He will remain district traffic superintendent at Inverness.

Mr. T. Matthewson-Dick, A.M.I.Mech.E., A.M.I.E.E., M.I.Loco.E., Assoc. Inst.T., hitherto assistant motive power superintendent, North Eastern Region, and now appointed mechanical and electrical engineer (maintenance), was educated at Rutherford College and Rutherford Technical College, and joined the L.N.E.R. in the department of the electrical engineer in 1923, later transferring to the chief mechanical engineer's department at Gateshead. After completing his apprenticeship he was appointed draughtsman at



Mr. I. C. Forsyth



Mr. T. Matthewson-Dick

locomotive superintendent, Blackpool, in 1934, and later became utilisation assistant (motive power) to the divisional superintendent of operation, Manchester. He was made maintenance assistant (motive power) to the divisional superintendent of operation, Crewe, in 1940, and in 1943 district locomotive superintendent, Plaistow. There followed the appointments as assistant, office of superintendent of motive power (1945), assistant works superintendent, Crewe (1946), and works manager, Crewe locomotive works (1948), the position he now vacates for his present appointment. In 1955 Mr. Forsyth was one of a team of four experts which went to Rhodesia to investigate the organisation of the Rhodesia Railways.

Mr. F. A. Cleminson has been appointed sales director of the Triplex Safety Glass Co., Limited, in succession to Mr. Jack W. Follett, whose retirement was announced last month. Mr. Cleminson has been sales manager of Triplex since 1955.

Sir James McNeill has decided to relinquish his appointment as managing director of John Brown and Co. (Clydebank), Limited, but he will remain deputy chairman and on the board of the parent company. The new managing director is to be Mr. John Brown, hitherto his deputy and principal naval architect at Clydebank. Sir James was largely concerned with the design of the Cunard "Queens."

Mr. E. Howell, appointed district operating superintendent, Kings Cross, Eastern Region, B.R., joined the former L.N.E.R. at West Curnforth in 1934. After experience at stations Mr. Howell was appointed a traffic apprentice in 1937. During the war he served with 193 Railway Operating Company, attaining the rank of major. Mr. Howell took up the post of assistant goods agent, Stockton, on demobilisation and was subsequently yardmaster and shedmaster, assistant to district operating superintendent, Wakefield; assistant district traffic superintendent, Carlisle; and assistant district operating superintendent, Nottingham Victoria. Upon the introduction of the new traffic organisation in the Eastern Region he was promoted to modernisation and general assistant, line traffic managers' office, Great Northern, which post he relinquishes to take up his new appointment.

Mr. R. T. Knowles is flying to Johannesburg on September 22 to take up the post of sales director of the new South African A.E.C. company, A.E.C. Vehicles (S.A.), Limited. He will be responsible for the management and expansion of sales and the progressive marketing of A.E.C. vehicles manufactured by the new subsidiary which works in conjunction with J. H. Plane (Africa), Limited.

Mr. J. Dolphin, engineer in chief of the research group of the U.K. Atomic Energy Authority, is to join Mr. V. A. G. Lambert as joint managing director of Lansing Bagnall, Limited. Messrs. E. Kaye and John R. Sharp remain joint governing directors; Mr. Lambert becomes company chairman.

H.R.H. the Duke of Edinburgh will be the guest of honour at the annual banquet of the Society of Motor Manufacturers and Traders to be held at Grosvenor House on October 20, the eve of the 1959 Motor Show. Among the guests will be cabinet ministers, senior government officials and leaders of the motor industries of Britain and overseas countries. The Duke will respond on behalf of the guests to a toast proposed by Mr. J. M. A. Smith, president of the Society, and assistant managing director of the Ford Motor Co., Limited.

Stooperdale, Darlington, in 1929. He returned to the locomotive running department at Gateshead as a junior inspector and later technical inspector and shedmaster. In 1943 he was appointed technical assistant to the locomotive running superintendent at York and became district locomotive superintendent there in 1947 and at Newcastle in 1952. In 1956 he returned to York as assistant motive power superintendent for the North Eastern Region, the post he now vacates. He is a vice-president and member of the council of the York Railway Institute and chairman of the North Eastern centre of the Institution of Locomotive Engineers.

Having now considered the proposals put forward by the Cunard Steam-Ship Co., Limited, about the replacement of the "Queens," the Government has decided that they raise issues of such complexity and magnitude it wishes to have the benefit of independent advice. The Minister of Transport has therefore set up a small committee to advise him on this problem as soon as possible and Lord Chandos has agreed to act as chairman. The other two members are Sir Thomas Robson and Sir John Hobhouse. Of these, the former is a chartered accountant, the latter was until his retirement a partner in Alfred Holt and Company, shipowners, and former chairman of the general council of British Shipping and of the Liverpool Steam Ship Owners' Association.

The appointment of Mr. A. E. Taylor as commercial superintendent, London, Tilbury and Southend Line, Eastern Region, B.R., was recently announced. Mr. Taylor joined the L.N.E.R. in 1938, but from 1940 to 1945 served in the Royal Air Force. In 1947 he was appointed a traffic apprentice and after subsequent experience was made head of the claims prevention subsection at Liverpool Street in 1952. Later seconded to the productivity committee (commercial superintendent's office), in 1956 he became assistant to the district passenger manager, London. At the commencement of the Eastern Region reorganisation he was appointed chief clerk to the line traffic manager, Fenchurch Street, and in 1957 became head of the sales and development section, line traffic manager's office, Kings Cross, whence he has now returned to Fenchurch Street.

Mr. L. F. G. Hand has been appointed general fleet engineer of Smedleys, Limited, and will be located at the head office at Whyteleafe, Surrey.

Mr. Denys L. T. Oppé has been made a member of the Southern Area Board of the British Transport Commission. Mr. Oppé is a managing director of Robert Benson, Lonsdale and Co., Limited, investment bankers, and he will fill the vacancy on the board caused by the appointment of Mr. A. B. B. Valentine as chairman of the London Transport Executive.

Mr. H. Riggall, managing director and deputy chairman of Ruston and Hornsby, Limited, is, at his own request, relinquishing his executive responsibilities as from December 31, by which date he will have reached the normal retiring age. He will remain with the company as a non-executive director and as deputy-chairman. His place as managing director will be taken by two other directors, Mr. V. R. Prehn and Mr. G. W. Bone, who will become joint managing directors. At the annual general meeting the chairman, Mr. W. J. Ruston, said that the board of directors had accepted, with regret, the managing director's decision to retire and were gratified that he would continue to give the board the benefit of his long and wide experience.

We've been together now for 40 years

... we wish to say how pleased we are with the last new Claymore delivered recently, this being the fourth of this model all of which are very economical on fuel and very reliable. Our experience of Albions extends over 40 years ... and we have travelled all over England and Wales without trouble.

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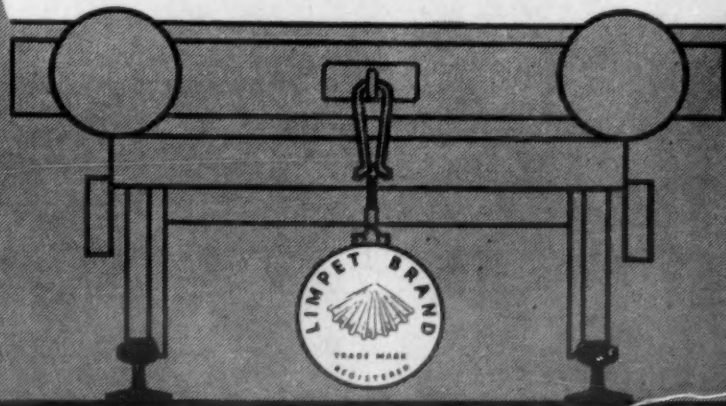
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IMPORTANT CONTRACTS

More Britannias for C.P.A.

WITHIN a year of introducing Bristol Britannia turboprop air liners into service on its routes, Canadian Pacific Airlines has placed an order for two additional aircraft of this type with Bristol Aircraft, Limited, bringing the C.P.A. Britannia fleet to eight aircraft. Delivery is scheduled for October and November this year. In placing the order, Mr. Grant McConachie, president of Canadian Pacific Airlines, said: "We have decided to acquire additional Britannias for operation on our Polar and trans-Pacific, trans-continental and other services, because no other aircraft in the world today combines the same qualities of range, economy and airport capabilities with a speed well in advance of the types of aircraft it replaces. Passenger opinions of the Britannia have been particularly gratifying, and we believe that with a fleet of eight Britannia aircraft we shall be able to offer a service to the public on our long-range routes, as on our trans-continental services, which cannot be equalled today by any propeller-driven aircraft."

Perkins Four 99 in Far East

A total of more than 1,100 Perkins Four 99 1.6-litre diesel engines have now been ordered by Lyons Motors, Limited, Singapore, from Perkins Engines, Limited. Most of the engines are being installed in taxis averaging up to 12,000 miles each a month in Singapore and Malaya, in which service the Four 99 has proved extremely reliable and economical, giving fuel consumptions of up to 56 m.p.g.

National Benzole Orders 2,000-gal. Seven-Tonners

The National Benzole Co., Limited, has ordered 31 2,000-gal. four-compartment, all-product road tankers, particularly notable for being the first tanks of this capacity to be mounted on B.M.C. 7-ton chassis, which are standard units apart from minor strengthening modifications. The present order brings the total of National Benzole tankers on B.M.C. 7-ton chassis to 131, 30 being 1,800-gal. spirit tankers and 70 1,500-gal. composite vehicles.

Dredging at Guayaquil

The joint venture of Richard Costain, Limited, and Dredge and Reclaim, Limited (the U.K. subsidiary of D. Blankevoort and Zoon N.V.), has been successful in obtaining a dredging contract, value £1,500,000, at the Port of Guayaquil. The work will be carried out for Compania Raymond S.A., a member of the Raymond Group responsible for the overall port development. The Costain-Dredge and Reclaim contract will involve the moving of some 14 million cu. yd. of dredged material, most of which will be pumped ashore as reclamation. The dredgers will be supplied by the Caribbean Dredging Co., Limited.

Bridge Contracts for Dorman Long

Leonard Fairclough, Limited, which won the £5½ million contract for the Thelwall Bridge and approaches, has accepted the tender of Dorman Long (Bridge and Engineering), Limited, for the supply and erection of the steel superstructure to the value of over £1½ million. The bridge, which

will have a total length of 4,558 ft., is part of the South Lancashire Motorway extending the Preston by-pass towards Birmingham. The wire department of Dorman Long (Steel), Limited, has received from the A.C.D. Bridge Company—a partnership formed by Sir William Arrol and Company, Cleveland Bridge and Engineering Company, and Dorman Long (Bridge and Engineering)—an order for approximately 7,500 tons of high-tensile galvanised wire required for the main cables of the suspension bridge under construction across the Firth of Forth.

Dorman Long (Bridge and Engineering) has also secured from American sources an order worth about \$2 million dollars for bridgework for Saigon, Vietnam. The contract, secured in the face of American and Continental competition, involves the supply of 5,500 tons of steelwork which will be fabricated at the company's bridge and construction works, Middlesbrough.

Finnish Contract for Adhesive

A new export order for one of its industrial adhesives has been announced by Surridge's Patents, Limited. Named Holdtite No. 33, the adhesive has been ordered by the Finnish company, Wartsila Koncernen A.B. Helsinki, for use in the insulation applied to icebreakers. The adhesive was chosen because of its very high resistance to moisture and extreme temperatures.

E.M.I. Computer for Armstrong Whitworth

What is said to be one of the most powerful analogue computer installations in this country went into operation recently at the Baginton factory of Sir W. G. Armstrong Whitworth Aircraft, Limited. Manufactured by E.M.I. Electronics, Limited, the computer cost over £55,000 to manufacture and install; it is capable of studying the performance of complete guided weapon or aircraft systems before they leave the drawing board.

North Eastern Region Contracts

Recent contracts placed by the North Eastern Region of British Railways include: North Eastern Electricity Board, Thornaby-on-Tees, for underground electricity service at Middlesbrough; Intermit, Limited, Birmingham, for a heavy-duty washer and oiler unit for Greensfield motive power depot, Gateshead; Steels Engineering Products, Limited, Manchester, for a Coles diesel-electric mobile crane for Stanningley; International Furnace Equipment Co., Limited, Newcastle, for five white metal melting furnaces for York carriage works; W. and C. Pentin, Limited, Epping, for provision of roller conveyor and lifting equipment for the locomotive works, Darlington; Beck and Co. (Metals), Limited, London, for oil-dispensing units for Heyton and Gateshead motive power depots.

New London Midland Region Contracts

The London Midland Region of British Railways announces the following contracts: Leonard Fairclough, Limited, Adlington, for reconstruction of Handforth Station and adjoining bridge; The Demolition and Construction Co., Limited, London, S.W.1, for Blechley Flyover earthworks and construction of intersection bridge over the Cambridge branch; Vickers Armstrongs (Shipbuilders), Limited, Newcastle upon Tyne, on behalf of the British Transport Commission Docks Division, for construction, delivery and installation of steel floating caisson; Butterley Co., Limited, Butterley, for part reconstruction of bridge on Manchester-Sheffield line.

SHIPPING AND SHIPBUILDING

Cold Stores and Dock Labour

SIX London cold storage companies which sought exclusion from the dock labour scheme are, with one exception, properly included within the scheme, says the report of an inquiry held by Mr. H. Lloyd-Williams in July this year. The report is published by the Stationery Office, price one shilling. The following five undertakings deemed properly included in the scheme are: Union Cold Storage Co., Limited; Palmers Cold Stores, Limited; Bermondsey Cold Stores; Thomas

better arrangements for labour. It would strike at the heart of the scheme.

Britain's Biggest Tanker

BUILT by John Brown on Clydeside, Britain's biggest tanker to date was to be named *British Queen* by H.M. Queen Elizabeth, the Queen Mother, on Wednesday this week. The *British Queen*, which is the first B.P. 50,000-ton tanker



Ten quay cranes were used simultaneously recently to unload a cargo of timber from the "St. Cergue" at Garston Docks. The crane installation is part of a modernisation programme

Borthwick and Sons, Limited; and Towers and Co., Limited (in relation to the store at Paul's Pier Wharf).

In admitting the claim by Chambers Wharf and Cold Stores (in relation to the South London Cold Storage) Mr. Lloyd-Williams says that there is a very strong case for excluding this store from the scheme on the ground that it was not handling cargo to any significant extent. It is 2½–3 miles from the river and is thus not "in the vicinity of the Port of London."

Nearly all the cold stores concerned denied that they wished to avoid paying the dock labour levy; they wished to be regular employers of labour and would carry more than was needed outside peak periods; this would at least offset the saving on the levy. The trade unions did not agree that cold store work was more complex than other kinds of dock work. The National Dock Labour Board agreed that cold stores were suitable for regular employment but not that complexity of the work justified exclusion from the scheme. Mr. Lloyd-Williams says that an employer cannot expect exemption simply because he can make

vessel, has an overall length of 760 ft. Her single screw will give her a loaded speed of 15½ knots. Accommodation for all her crew, except apprentices and boys, is in single air-conditioned cabins.

Fast Work at Garston

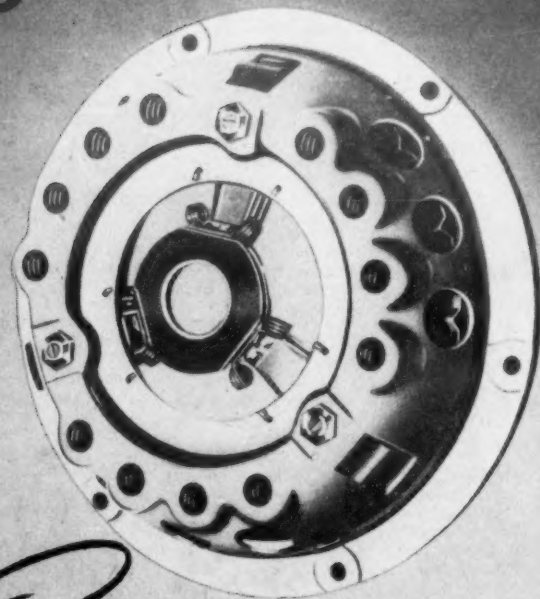
SOME 2,300 standards of deals, battens and boards, stowed in five hatches, were discharged from the vessel *St. Cergue* at the B.T.C.-owned Garston Docks in a few days, demonstrating the value of the docks modernisation programme. The timber was transferred to 1,232 railway wagons in 11 eight-hour turns of duty. No overtime was worked and the vessel sailed the same day unloading was completed. Mr. R. Whatling, docks manager, said that during the course of discharge 10 cranes were in use simultaneously on several days, the first occasion it had been possible to utilise the modern craneage to such an extent. "This performance offers an indication of the effect upon ship turnaround of the modernisation programme now nearing completion," he added. The cargo would formerly have needed 18 turns.

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